Santa Clara Valley
Water District

Final Environmental Impact Report

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Matadero/Barron Creeks Long-Term Remediation Project

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SANTA CLARA VALLEY WATER DISTRICT
MATADERO/BARRON CREEKS LONG-TERM REMEDIATION PLANNING STUDY
FINAL ENVIRONMENTAL IMPACT REPORT
PROJECT NO. 102109

Final Environmental Impact Report Prepared by David J. Powers & Associates under the Direction of

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October 2002
SCH# 1987122908

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INTRODUCTION

This document, together with the Draft Environmental Impact Report (DEIR), constitutes the Final Environmental Impact Report (FEIR) for the Matadero and Barron Creeks Remediation Project. The DEIR was circulated to affected public agencies and interested parties for a 45-day review period. This document consists of all comments received by the Lead Agency, the Santa Clara Valley Water District, on the DEIR, responses to those comments, and revisions to the text of the DEIR.

In conformance with the CEQA Guidelines, the FEIR provides objective information regarding the environmental consequences of the proposed project. The FEIR also examines mitigation measures and alternatives to the project intended to reduce or eliminate significant environmental impacts. The FEIR can be used by the District and other Responsible Agencies in making decisions regarding the project. The CEQA Guidelines require that, while the information in the FEIR does not control the agency's ultimate discretion on the project, the agency must response to each significant effect identified in the FEIR by making written findings for each of those effects. According to the State Public Resources Code (Section 21002.1), no public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that would occur if the project is approved or carried out unless both of the following occur:

(a) The public agency makes one or more of the following findings with respect to each significant effect:

  (1) Changes or alterations have been required in, or incorporated into, the project that will mitigate or avoid the significant effects on the environment.

  (2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.

  (3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities of highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.

(b) With respect to significant effects that were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal, social, technical, or other benefits of the project outweigh the significant effects on the environment.

All documents referenced in the EIR are available for public review at the Santa Clara Valley Water District main office, 5750 Almaden Expressway, San Jose, California, on weekdays from 9:00 a.m. to 5:00 p.m.

I. LIST OF AGENCIES AND INDIVIDUALS WHO RECEIVED THE DRAFT EIR

Agencies:

- State Clearinghouse Office of Planning and Research – 15 copies
- Joe Teresi, City of Palo Alto Public Works Department
- Glenn Roberts, City of Palo Alto, Director of Public Works
- Ed Gauff, City of Palo Alto, Director of Planning
- Jean Finney, CALTRANS
- Molly Martindale, U.S. Army Corps of Engineers
- Paul Amato, SF Bay Regional Water Quality Control Board
- Scott Wilson, CA Dept. of Fish & Game
- Craig Breon, Santa Clara Valley Audubon Society
- Keith Anderson, S.C. County Streams for Tomorrow
- Julia Bot, Sierra Club
- Annette Walton, Stanford Management Agency

Individuals:

- Libby Lucas
- Ellie Gioumousis
- Bob Moss
- Jack Walker, Northwest Flood Control Zone Advisory Committee
- Paul & Betty Shaft
- John Abraham
- Chuck Bradley
- Bob Jackson
- John Nichols
- Leif Schaumann
- Henry Jackson
- Ken Poulton
- Grant Nesbit
- Jim Sutherland
- Julie Nolan

Copies of the Draft EIR were made available during the public review period at the following locations:

- Palo Alto Public Library – Reference Desk (1213 Newell Road)
- Palo Alto Public Library (College Terrace Branch, 2300 Wellesley Street)
- Palo Alto Public Library (Mitchell Park Branch, 3700 Middlefield Road)

II. LIST OF AGENCIES AND INDIVIDUALS COMMENTING ON THE DRAFT EIR

Presented below is a list of agencies, organizations, and individuals commenting on the Draft EIR. Complete copies of all of the letters are included in Appendix E of the Final Environmental Impact Report Document.

Regional and Local Agencies		
A-C.	City of Palo Alto	December 04, 2001
D.	Regional Water Quality Control Board	December 14, 2001
E.	Caltrans	November 19, 2001 December 04, 2001
Organizations		
F.	Streams for Tomorrow	November 19, 2001
G.	Mark Thomas and Company	November 30, 2001
Individuals		
H.	John Nichols	November 02, 2001
I.	Ellie Gioumousis	December 03, 2001
J.	Don Mayall	December 03, 2001
K.	Libby Lucas	December 03, 2001
L.	Chuck Bradley	December 03, 2001
M.	Julie Nolan	December 03, 2001
N.	Brian Reed	December 04, 2001
O.	Emily Renzel	December 04, 2001
P.	Midtown Residents Association	May 22, 2002
Public Hearing		
Q.	Public Hearing	November 20, 2001

III. RESPONSES TO COMMENTS RECEIVED ON THE DRAFT EIR

This section includes all of the comments received by letter, e-mail, and at the public hearing during the 45-day review period advertised for this DEIR and responses to those comments. The comments are organized under headings containing the source of the comment and its date. The letters have been grouped into the following categories:

- Regional and Local Agencies
- Organizations
- Individuals

The specific comments from all the sources are presented as "Comment" with each response directly following. Copies of the actual letters received are found in their entirety in Appendix E of the Final Environmental Impact Report document.

REGIONAL AND LOCAL AGENCIES

A. RESPONSE TO COMMENTS FROM THE CITY OF PALO ALTO PUBLIC WORKS DEPARTMENT, DATED DECEMBER 4, 2001.

Comment 1: Raising the northern floodwall at Matadero Creek station 101+00 will affect the security fencing at the City's Matadero Pump Station, as well as vehicular access to the station from the creek maintenance road. The project scope should be expanded to include modifications to the fencing and to the vehicular ramps to restore existing access to the pump station.

Response 1: On page 7-12 of the Draft Engineer's Report, third paragraph, the following text has been added: "Modifications will be made to the existing security fencing and the vehicular access to the City of Palo Alto's Matadero Pump Station to maintain the security and accessibility of this facility by City staff."

Comment 2: City staff has observed that the presence of sediment and vegetation in Matadero Creek downstream of Highway 101 impedes creek flow rates even during moderate storm events. The resultant increased water level causes backwater effects that impact local drainage facilities. Several gravity storm drains that flow into lower Matadero Creek stop draining when the elevated creek level closes the flap gates at the outfalls. Higher creek levels also increase the head pressure and run times for the Matadero Pump Station, located between Greer Road and Highway 101.

Response 2: The hydrologic and hydraulic analyses performed as part of this Planning Study have clearly shown that the constriction to flow due to the thick vegetation along the Matadero Creek channel downstream of 101 impacts the water levels upstream of Highway 101. The proposed overflow bypass will relieve this backwater condition, especially during high flow periods. Based on the hydrologic and hydraulic analyses, it is anticipated that storm events in excess of the 2-year recurrence interval will result in peak flood flows and water levels downstream of Highway 101 that will spill into the bypass channel. This, in turn, will reduce peak water levels in Matadero Creek upstream of Highway 101. At West Bayshore Road, where a 48-inch storm drain discharges near the creek bottom, the maximum water level from a 5-year storm event will be reduced by 1.4 feet. At Greer Road, where additional storm drains outfall to the creek, a reduction of 0.8 feet of water levels is expected during a 5-year storm event due to the operation of the downstream bypass.

Sediment and vegetation in Matadero Creek downstream of Highway 101 are addressed in detail in Response to Comment 3 and will be used as a trigger for ongoing maintenance.

Comment 3: Figure 3-6 indicates that the Matadero Creek low flow channel downstream of Highway 101 was originally 25 feet wide with an invert elevation of six feet below sea level. Continued maintenance of the Matadero Creek low flow channel downstream of Highway 101 is a critical element in ensuring effective local drainage. Therefore, the maintenance standards for Reach 1 of Matadero Creek (Table 8-1) should be modified to require that the low flow channel be fully restored to its original dimensions once the maintenance thresholds are exceeded. Furthermore, the maintenance thresholds for Reach 1 should be modified to require sediment removal after accumulation of two feet (not four feet) of sediment. The EIR does not describe the impacts of allowing two additional feet of sedimentation beyond the existing conditions in the low flow channel, nor does it justify this increased sedimentation as an appropriate maintenance standard. In addition, sediment surveys should be conducted as often as needed (not necessarily only once every four years as stated on page 8-5) to ensure compliance with the maintenance standards.

Response 3: As stated in Chapter 3 of the Draft Engineer's Report (DER), approximately 2 feet of sediment have accumulated in this channel reach over the past 30 years. From a geomorphic perspective, this channel appears to be in equilibrium, with bed load scoured from the channel bottom and conveyed to the PAFB during high flow events. During lower flow events, sediments are likely deposited again in the channel bottom. Due to the presence of the tide gates at the outer edge of the PAFB, the water in the Matadero Creek channel is usually maintained at about -2.5 feet NGVD, which, in turn, slows the velocities of upstream flows, and results in sediment deposition in the channel.

As discussed in Chapter 8 of the DER, the proposed overflow bypass will divert sediment-laden flows from the main channel during events that are roughly greater than the 2-year storm. The sediments will likely deposit along the bypass, where they will be removed by regular District maintenance procedures; therefore, less sediment should be transported down the main creek channel in the future. In addition, the sediment basin to be constructed at the beginning of the overflow bypass will trap sediments coming from upstream, even if no flows are diverted to the overflow bypass.

To address City's concerns, additional field surveys were conducted by District and consultant team staff, some additional hydraulic analyses were performed to better establish the maintenance standards for reaches of the creek between Greer Road and the Palo Alto Flood Basin (PAFB), City staff were consulted via phone and e-mail, and a meeting was held in August 2002 to discuss the appropriate maintenance work.

The hydraulic analyses indicated that channel dredging in the reach of creek between Highway 101 and the PAFB would not improve the City's storm drain operations significantly in the reaches between West Bayshore Road and Greer Road. If the creek is dredged to elevation -6 feet NGVD (2 feet below what has been established as an equilibrium invert elevation of -4 feet NGVD), the water levels at West Bayshore Road would be reduced by about 0.5 feet during a 5-year storm event, and by 0.14 feet at Greer Road. Furthermore, field surveys conducted by project team staff indicated that it would be more effective to maintain the channel section between Highway 101 and Greer Road to maximize the operational capacity of the City's storm drain outfalls.

The District's Stream Maintenance Program covers sediment removal from Ross Road downstream to Highway 101. The District currently has a permit from Caltrans to perform maintenance work underneath Highway 101. The Matadero/Barron Creeks Long-Term Remediation project includes and mitigates for sediment removal from Highway 101 to approximately 100 feet downstream of East Bayshore Road. The sediment deposition level under East Bayshore Road will be used as a trigger to perform maintenance work and will be inspected annually. If the sediment at this location reaches elevation -3 feet NGVD (a depth of one foot), sediment removal will be performed within the following 12 months to remove sediments to elevation -4 feet NGVD under the East Bayshore, Highway 101, and West Bayshore bridges, and to the invert levels as shown in the 2002 Engineer's Report between West Bayshore and Greer Roads.

Based on data collected and engineering analyses performed during this project, it has been concluded that the natural reach of Matadero Creek downstream of East Bayshore Road is in equilibrium. A land survey was performed in 1999, obtaining several cross-sections of the channel in this reach. The District will conduct an annual survey for the next five years at these cross-sections. At the end of this period, a report will be prepared to summarize the temporal changes in creek channel geometry and sediment deposition in this reach. This report will be used to determine if there is a need to modify the existing recommendation for maintenance activities.

Comment 4: The report notes that approximately two feet of sediment has accumulated in the low flow channel since 1971 and that a sediment delta has formed at the entrance into the Flood Basin downstream of the City's Municipal Center. If the maintenance standard for Reach 1 of Matadero Creek is modified as proposed above, the existing condition of the low flow channel justifies immediate maintenance. Therefore, the project scope should be expanded to include the restoration of the accumulated material at the delta, in order to reduce the existing negative impacts to local drainage. Removing the accumulated sediment as part of the project will ensure that the creek complies with the maintenance standards right from the start.

Response 4: The Draft Engineer's Report states (on page 3-9) that a sediment delta has begun to form where the channel discharges into the marshy flood basin at its downstream end. Deltas form when sediment-laden water is discharged into quiescent water through sudden expansions, as is likely the case at this location. The topographic surveys that were done as part of this Planning Study indicate the presence of this delta, but also show that the Matadero Creek channel cuts right through the delta and continues into the Mayfield Slough channel. During periods of high flow, the thick vegetation lining both sides of the creek just downstream of 101 will limit the conveyance capacity to a greater extent than the presence of sediment deposits in the PAFB.

A valid concern with regards to this sediment delta is its potential impact to the storage capacity of the PAFB. As discussed in Appendix G of the Draft Engineer's Report, the topographic survey conducted in 1999 provided a means to evaluate if the capacity of the PAFB has diminished over time. Comparing the Elevation-Storage curves between 1976 and 1999 in Figure G-8, it is clear that there has been minimal change in storage capacity over the past 25 years.

The sediment delta observed from the 1999 topographic survey covers an area of approximately 18 acres, with sediment deposition estimates ranging from 0.5 to 1.5 feet. Excavating this accumulated material would result in extensive damage to the marsh habitat and dense shrubbery that has been established in this area, and additional impacts to both the surrounding vegetation and wildlife habitat of the Baylands. As stated in the response to the previous comment (Comment 3), the proposed sediment basin and overflow bypass will be diverting both runoff and sediments from the main channel, thus significantly reducing the sediment loads to the existing creek channel.

Comment 5: The visual and aesthetic impacts of the raised floodwalls are a significant concern to Palo Alto residents. The City strongly supports the District's efforts to gain approval from FEMA to relax their standard freeboard requirements based upon Schaaf & Wheeler's risk-based analysis. Relaxation of the freeboard standard would allow the floodwall heights to be reduced. The City also supports the District's proposal to use form liners to cast an aesthetic pattern into the concrete floodwalls or use of other aesthetic treatments to minimize the visual impacts of the walls.

Response 5: In June 2002 FEMA approved the District's application to use risk-based freeboard criteria to determine floodwall and headwall heights along Matadero Creek. As a result, the required floodwall heights as presented in the Draft EIR have been significantly reduced. However, the required height of headwalls at the Greer Road and Louis Road bridge crossings will range from 4 to 5 feet to meet FEMA standards. Proposed mitigation recommends that the sidewalks be raised to maintain the existing views of the creek after the bridge headwalls are raised, that decorative architectural elements are incorporated into the headwall design, and that temporary flood barriers be installed along the maintenance access ramps at these two bridges between mid-October to early May. These mitigation measures will reduce the visual and aesthetic impacts of higher headwall requirements to less than significant.

Comment 6: The City's storm drainage master plan recommends construction of a new pump station to discharge the flow from an existing 96" storm drain into San Francisquito Creek just downstream of Highway 101. The District-owned parcel adjacent to the International School, which is proposed for use as a mitigation site for the Matadero/Barron Remediation Project, may be an ideal location for this proposed pump station facility. The District is seeking to route a section of the Matadero overflow bypass channel across the City-owned Municipal Service Center (MSC). Compensation for use of the City-owned land is yet to be negotiated. The City would like the District to consider the concept of exchanging a portion of the "International School Site" for an equivalent square footage of the MSC property. Details of the land exchange would be subject to future negotiations and mutual agreement.

Response 6: The District is in the process of negotiating a land swap with the City in support of this project. The District will ensure that such a land swap will not detract from the requirements of habitat mitigation.

Comment 7: The proposed overflow bypass channel downstream of Highway 101 would be constructed within an easement granted to the District by the City. The underlying land parcel is a dedicated park known as the City-owned Baylands. In accordance with the Palo Alto Municipal Code, any significant improvements to a dedicated park require City Council approval through adoption of a park improvement ordinance. The zoning of the parcel (Public Facility with Site and Design district overlay) requires that any development on the parcel is subject to the Site and Design review and approval process. This process includes review by the Planning Commission and Architectural Review Board (unless waived by City Planning Department Staff) in addition to approval by City Council. The proposed overflow bypass channel and any related construction within the City-owned Baylands parcel will require the approval of a park improvement ordinance by the City Council and will be subject to the Site and Design review process.

Response 7: The District will comply with all applicable City of Palo Alto ordinances during implementation of the proposed project. The park land dedication process identified in your comment has been added to the "Uses of the EIR" section (see Section VI-F of this FEIR).

Comment 8: The design of the overflow bypass channel should be modified to include installation of a landscaping buffer/screen between the Municipal Services Center and the channel.

Response 8: As stated on page 12 of the DEIR, the District intends to plant a vegetation screen between the Municipal Service Center and the overflow bypass channel.

Comment 9: On Barron Creek upstream of Louis Road, the 30" high floodwall on the right bank extends several hundred feet beyond the floodwall on the left bank. This issue was raised by a member of the public at one of the early community outreach meetings for the Matadero/Barron Creeks Remediation Project, but has never been satisfactorily explained by District staff. It appears that the current situation results in differing levels of flood protection for the residents on the two sides of the creek. The Engineer's Report/EIR should address this issue and offer a resolution.

Response 9: In this area, the floodwall is not required on either bank to meet FEMA criteria. The District will either remove the wall on the north bank, or extend the wall along the south bank to an equal length and height. Neither action will impact the level of flood protection for this reach of Barron Creek. Since this floodwall does not impact the one-percent flood protection objective of this project, the modifications will be accomplished as a separate project.

Comment 10: Change third bullet on Page 1-5 of the Engineer's Report to Read: "Channel capacity downstream from Highway 101 was ~~underestimated~~ overestimated".

Response 10: The proposed correction is included in the text amendments in Section IV of this FEIR.

Comment 11: The project objective, as stated on Page 6-6 of the Engineer's Report, is "to reduce one-percent backwater at Highway101 from the "no project" condition, which is 7.4 NGVD, to less than 6 feet NGVD, thereby restoring the downstream conveyance assumed in the 1988 Engineer's Report." On Page 6-8, the hydraulic performance of the overflow bypass is stated as follows: "At the peak of Matadero Creek's one-percent discharge hydrograph, the backwater elevation at the downstream face of East Bayshore Road would be 5.7 feet NGVD. When PAFB stage is at a maximum (and the creek flow rate is 1,250 cfs), the downstream backwater would reach an elevation of 6.6 feet NGVD." Based on these projected results, does the overflow bypass channel achieve the stated project objective?

Response 11: Yes, the overflow bypass does achieve the stated project objective. To clarify, the discussion on page 6-8 states that when Matadero Creek is conveying the peak flow (3,100 cfs), the operation of the proposed bypass will maintain the backwater elevation at the downstream face of East Bayshore Road at 5.7 feet NGVD. The key phrase in this sentence is "when Matadero Creek is conveying the peak flow". If you refer to Figure G-9 in Appendix G of the Engineer's Report, the Matadero Creek inflow to the Palo Alto Flood Basin peaks and diminishes in a matter of hours during the simulated 72-hour one-percent rainfall event. This is the critical period of time for backwater impacts in the lower reaches of Matadero Creek. Improving the creek conveyance capacity with an overflow bypass results in a significant drop of the backwater elevation at East Bayshore Road (from 7.4 feet NGVD to 5.7 feet NGVD during the "peak flow" period, as stated in the report).

The second fact stated in this paragraph was presented for information purposes only, but will be removed from the Final Engineer's Report to reduce confusion. It states that the backwater elevation at E. Bayshore Road does rise above 6.0 feet NGVD, but this occurs several hours after the peak flow has passed (note reference to the flowrate of 1,250 cfs at that time). Again, referring to Figure G-9, when the Matadero Creek inflow drops to 1,000 cfs around Hour 48, it is the water elevation in the PAFB that is fairly high, which causes the rise in backwater elevation at E. Bayshore Road. Since the peak flow has passed, the potential for upstream flooding is significantly reduced as you have only one-third as much flow in the creek channel.

B. RESPONSE TO COMMENTS FROM THE CITY OF PALO ALTO TRANSPORTATION DIVISION, DATED DECEMBER 4, 2001.

Comment 1: The EIR needs to evaluate the impact of the Louis Road bridge raising on sight distance for Louis Road drivers. This does not seem to be included.

Response 1: As stated on Page 6 of the DEIR, the approaches to the bridge will also be modified to achieve an acceptable sight distance. Final design of the street paving will be coordinated with the City Public Works Department to ensure that the sight distance meets City standards. A preliminary assessment of the impact on sight distance from raising the Louis Road Bridge is discussed on page 7-23 of the Engineer's Report.

Comment 2: SCVWD will have to determine truck routing and have it approved by the City.

Response 2: The District will submit a proposed truck route for all phases of the Matadero/Barron Creek Remediation Project to the City of Palo Alto for their review prior to project construction.

Comment 3: The EIR states that trucks will be passing Ohlone School, but that school is not on Louis Road (Page 102). This is identified as a significant temporary impact. The EIR needs to clarify this.

Response 3: This comment is correct that Ohlone Elementary School is not located on Louis Road. It is close enough, however, that much school-related traffic uses Louis Road. The school location will be clarified in the EIR. See Section IV of the FEIR for text revisions.

Comment 4: The mitigation of the impact of truck traffic on school children by having additional crossing guards seems reasonable (Page 106). However, the mitigation needs to require the SCVWD to pay for the crossing guards. It is not clear whether these crossing guards would be on Louis or in front of the school. This muddled discussion needs some clarification.

Response 4: The impact would be on Louis Road, as stated in the DEIR. The crossing guards need to be where the most children are likely to cross the street at the crossing nearest the school. During construction, the District will provide crossing guards at appropriate locations as determined by the contractor.

Comment 5: Closing Louis Road would potentially significantly impact the walking and bicycling routes of school children, as they cannot as easily use detours as can vehicle traffic. The EIR needs to quantify the impacts of the closure on this group of road users.

Response 5: According to the administration at Ohlone School, the students of the Ohlone Elementary School live throughout the City of Palo Alto, not just in the surrounding neighborhood. As a result, most of the children attending the school arrive by automobile. Automobiles can detour around Louis Road Bridge or drive an alternate route to the school. Bicycle and walking detour signage will be included as part of the traffic detour.

Comment 6: The EIR needs to quantify the amount of traffic diversion to side streets and evaluate whether or not the impact would be significant.

Response 6: As stated in the DEIR, there are a number of parallel routes available to vehicles using Louis Road. Temporary increase in traffic on these parallel routes might result in inconveniences, but should not be significant.

Comment 7: The EIR needs to evaluate a construction alternative that does not involve full closure of Louis Road, in order to avoid the disruption of school traffic and normal vehicle traffic on Louis.

Response 7: The Louis Road Bridge must be removed and replaced. Any reconstruction technique is going to involve some disruption of traffic, and is unlikely to be compatible with use by children during construction. Further, reconstruction that allows for continuous vehicle use will take longer, extending the related impacts for a longer time period.

Comment 8: SCVWD will have to determine a traffic detour and signage plan and have it approved by the City.

Response 8: The District will submit a traffic detour and signage plan for all phases of the Matadero/Barron Creek Remediation Project to the City of Palo Alto for review and approval prior to project construction.

C. RESPONSE TO COMMENTS FROM THE CITY OF PALO ALTO PLANNING DIVISION, DATED DECEMBER 4, 2001.

Comment 1: Inadequate mitigation for loss of willow riparian habitat. The proposed project would construct a 60-foot wide concrete channel in the Baylands extending approximately 1500 feet along Matadero Creek downstream of East Bayshore Road and continuing southeast between the north side of the MSC and the Baylands. The proposed project would destroy 1 acre of willow riparian habitat, which represents over 30% of the existing 3.18 acres of well developed riparian habitat adjacent to Matadero Creek below

Highway 101. The proposed mitigations do not make up for such a significant loss. The proposed on-site mitigation area next to East Bayshore Road will be an isolated pocket, separated from Matadero Creek by the proposed new 60 feet wide concrete channel and bounded on the other two sides by the MSC and East Bayshore Road. The proposed mitigation area at the International School is located outside the Matadero Creek watershed, and it is not adjacent to the creek where it is located, San Francisquito Creek, but rather is separated from the creek by an access road. According to the DEIR, these new mitigation areas would not begin to provide the values of mature riparian forest until approximately 8 to 10 years after planting.

Response 1: The proposed project will remove 0.78 acres of the mapped riparian habitat on Matadero Creek downstream of Highway 101. There is additional riparian habitat beyond the 3.18 acres mapped within the area of potential impact from the proposed project. In the opinion of the consulting biologist, the proposed mitigation of 2.34 acres of riparian habitat offsets both the temporal loss of habitat function and structure, and the uncertainties of habitat restoration both on-site and off-site.

Although the San Francisquito Creek mitigation site is located outside of the Matadero Creek watershed, it is in a similar geomorphic setting as the impact site. Since most of Matadero Creek in the vicinity of the project site is highly urbanized with a concrete lined channel, there are no other opportunities for riparian habitat mitigation in a similar geomorphic setting within the Matadero Creek watershed.

Comment 2: Rejection of the environmentally superior alternative. There does not appear to be adequate basis to the rejection of the environmentally superior alternative, the underground bypass alternative, for the project Downstream of Highway 101.

1. The environmentally superior alternative impacts less than half the habitat area as the proposed alternative, and this impacted habitat is located in a less environmentally significant area adjacent to East Bayshore Road, rather than deep into the Baylands as in the proposed project. Also, it may be possible to mitigate most or all of this habitat loss on-site by restoring the areas now occupied by Eucalyptus and Ruderal habitats, rather than outside the watershed as in the proposed project. The Underground Bypass would be located almost entirely outside the Baylands, so these degraded areas which would be replaced by the 60 feet wide concrete channel in the proposed project, would be available as mitigation areas in the environmentally superior alternative.
2. Contaminated soil and groundwater located along the northern property line of the MSC would be avoided in the environmentally superior alternative. This would completely eliminate the significant hazardous materials impact created by the proposed project.
3. The additional cost of the environmentally superior alternative, approximately $7 million, is within the total $24 million budget allocated for this project, and is far below the $40 million established as the order-of-magnitude cost criterion for alternative feasibility.
4. The significant environmental impacts of the proposed project, although technically mitigated, represent extensive and permanent changes to the Baylands habitat, while the impacts of the environmentally superior alternative are largely temporary. Although the impacts created by the Underground Bypass are substantial (temporary circulation issues, relocating utility lines, and more difficult and expensive future maintenance), these impacts

are mitigatible and the Underground Bypass is presented as a feasible alternative that meets the objectives of the project.

Response 2: First, a clarification regarding the reference to a "60 feet wide concrete channel" as part of Statement #1. The proposed overflow bypass will be approximately 60 feet wide and will be constructed with a concrete bottom. The sides of this bypass, however, will be constructed with a gravity retaining wall system comprised of interlocking blocks or web cells that will allow for planting with appropriate native grasses and shrubs, to provide a more natural appearance within the existing riparian corridor.

The District Board will take into account the facts presented in the EIR and the Engineer's Report and will make a determination on which project to pursue based on both environmental and economic factors.

The table below provides a summary comparison of various features that pertain to both the proposed overflow bypass and the underground bypass alternative.

Feature	Overflow Bypass	Underground Bypass
Project Description	60 feet-wide high flow bypass parallel to Matadero Creek along the MSC boundary	40-feet wide by 8-feet high box culvert constructed under E. Bayshore Road to discharge high flows to the PAFB south of the MSC
Estimated Construction Costs	$8.0 Million	$15.0 Million
Construction Impacts	Excavation and removal of soils and associated vegetation along Matadero Creek. Installation of a hard maintenance bottom with vegetated gravity retaining wall system.	Construction of an inlet structure at Matadero Creek downstream of Highway 101; closure of E. Bayshore Road for duration of construction; relocation of water, gas, storm drain, high pressure gas, sanitary sewer, street lighting, and possible other utilities; raising the elevation of E. Bayshore Road along entire length of box culvert; modifications to MSC entrance roads and other driveways along the alignment to match higher E. Bayshore Road elevations
Wetlands Impact	0.1 acres	<0.01 acres
Riparian Impact	0.78 acres	0.4 acres
Mitigation for Habitat Impacts	Mitigation for all impacts will be performed.	Mitigation for all impacts will be performed.
Hazardous Materials	Some cleanup of soils impacted by underground fuel storage spills may be required during construction	Alignment of underground bypass will avoid areas of potential underground fuel contamination.
Maintenance	Regular mechanized removal of sediment from bypass. Bypass will be accessed from constructed ramp.	Regular removal of sediment from bypass is imperative, or box culvert hydraulic capacity will be compromised. Maintenance activities will require compliance with regulations for working in an enclosed space.
Estimated Annual Maintenance Costs	$30,000	$52,000

Comment 3: Palo Alto Comprehensive Plan. The environmentally superior alternative, the Underground Bypass, would be more consistent with the goals, policies and programs of the 1998 Palo Alto Comprehensive Plan, particularly: Goal N-2, which identifies "the City's desire to conserve pristine riparian corridors; reestablish corridors that have been diminished by flood control culverts; concrete channels, and other disturbances; and prevent further degradation of the creek environment; Policy N-9, avoid fencing, piping, and channelization of creeks when flood control and public safety can be achieved through measures that preserve the natural environment and habitat of the creek.; and Policy N-11, preserve the integrity of riparian corridors.

Response 3: The District believes that both the Overflow Bypass and the Underground Bypass meet the qualifications of and are consistent with the goals, policies and programs of the Palo Alto Comprehensive Plan.

Comment 4: Pursue Enhancement No. 2. The presentation of enhancement opportunities pursuant to the District Board's Ends Policy of improving the environmental quality of streams and environmental resources in its jurisdiction is an important positive contribution and should be pursued. Enhancement No.1, create a recreational path, may have limited value since the path would be located between the proposed new concrete channel and the MSC fence and would not connect to the trail system. Enhancement No. 2, restoration of Matadero Creek downstream of Highway 101 to a more natural riparian habitat, would be a valuable improvement in this important habitat and should be implemented. Enhancement No. 3, Restoration of Mayfield Slough, appears to be more uncertain, but continued investigation of feasibility would be desired.

Response 4: In response to several comments from the public, the proposed work described as Enhancement No. 2 in the Draft EIR has been incorporated as part of the Matadero Remediation Project in order to increase the amount of on-site mitigation.

D. RESPONSE TO COMMENTS FROM THE REGIONAL WATER QUALITY CONTROL BOARD, DATED DECEMBER 14, 2001.

Comment 1: Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR) for the subject project and for extending the comment period to December 14, 2001 to accommodate the San Francisco Bay Regional Water Quality Control Board (Regional Board) request. Upon the request of the Santa Clara Valley Water District (District) the DEIR has been reviewed and written comments provided by the December 14, 2001 extended deadline.

Several alternatives were considered for the upstream and downstream reaches of the Project. The District has considered several relevant factors in their alternatives including meeting project objectives, minimizing environmental impacts, feasibility, and cost.

Preferred Alternative

The Preferred Alternative proposes to modify parts of Matadero Creek to achieve 100-year flood protection standards of the Federal Emergency Management Agency (FEMA). According to engineering analysis, Matadero Creek will not currently meet these standards.

Matadero/Barron Creeks are located in the City of Palo Alto, and drain into the Palo Alto Flood Basin (PAFB), which flows into San Francisco Bay. The project reach is a 1.7-mile section between Alma Street upstream and the PAFB downstream. The Preferred Project alternative would involve the following modifications to Matadero Creek:

- Replacement of Louis Road Bridge,
- Modification of channel upstream and downstream of Louis Road,
- Raising floodwalls and headwalls,
- Construction of an overflow bypass along the edge of the City's Municipal Services Center.

Impacts include 0.1 acre of wetland habitat within the willow riparian habitat area downstream of Highway 101 and 0.97 acre of riparian habitat in the footprint of the proposed bypass channel. Mitigation for impacts includes 2:1 in-kind wetlands creation on-site and 3:1 in-kind riparian creation both on- and off-site. Due to current constraints, 0.37 acre or riparian area would be created on-site and 2.54 acres would be created off-site at one of four locations. Mitigation should be in-kind and on-site whenever possible. When constraints exist, mitigation should be designed and located so that impacts are most appropriately and directly compensated for.

Response 1: The total amount of riparian mitigation proposed for the project is 2.34 acres. As was stated in the Draft EIR, the District originally proposed creating 0.37 acre of riparian area at the project site.

Removal of non-native species within the Matadero Creek channel downstream of Highway 101 and replacement with native species will increase on-site mitigation by 0.6 acres, yielding a total of 0.97 acres of riparian habitat mitigation on the project site.

The remaining 1.37 acres of riparian mitigation will be located on San Francisquito Creek where in-kind mitigation is possible. This site is in the same geomorphic setting (adjacent to San Francisco Bay) and located one watershed north of Matadero Creek.

Comment 2: Efforts have been made by the District to reduce impacts to the existing habitat downstream of Highway 101 by building an overflow bypass channel. Concerns raised by this alternative include impacts to existing wetland and riparian habitat and 'the lack of on-site mitigation opportunities for riparian, exposure of soil contaminated with petroleum hydrocarbons, sedimentation in the natural channel below the diversion inlet during bypass events, and impacts to existing habitat in the Palo Alto Flood Basin due to bypass discharge events.

Concerns raised by the preferred upstream alternative include impacts to beneficial use defined as REC-2 or Non-contact Water Recreation due to elevation of existing floodwalls and headwalls along the channel.

According to the San Francisco Bay Basin Water Quality Control Plan (Basin Plan), the following beneficial uses are designated as existing for Matadero Creek:

- COLD - COLD FRESHWATER HABITAT m MIGR - FISH MIGRATIO
- REC-1 - WATER CONTACT RECREATION
- REC-2 – CONCONTACT (sic) WATER RECREATION
- SPAWN - FISH SPAWNING
- WARM - WARM FRESHWATER HABITAT
- WILD - WILDLIFE HABITAT

The District does not refer to impacts to REC- 1 and REC-2 as part of their beneficial uses described on pages 17 and 18 of the DEIR. The District should consider impacts to all beneficial uses designated for Matadero Creek as part of their environmental analysis.

Response 2: Impacts from project construction to REC-1 and REC-2 (both contact and non-contact recreations) are negligible. The reach of Matadero Creek upstream of Highway 101 is a concrete-lined flood control channel that is off-limits to the public. The reach of Matadero Creek below Highway 101 would only be influenced by the project during flood events when REC-1 and REC-2 are both unadvisable.

Comment 3: Of the alternatives discussed, further discussions of the Emily Renzel Marsh Flood Storage, Off Site Storage, and Expanded Floodway Alternatives are requested. It is understood that these alternatives may not be feasible as stand-alone projects but consideration should be given to combining these alternatives if it could provide adequate flood storage and long-term benefit to the Matadero Creek Watershed.

Response 3: The aforementioned alternatives have been thoroughly analyzed in the Engineer's Report and have been found to be infeasible for the reasons stated. Both the Engineer's Report (Chapters 5 and 6) and the EIR (Section VIII) explain the reasons why these alternatives were not considered for the project. Combining the alternatives would not substantially change their feasibility.

Comment 4: *Environmentally Superior Alternatives*
Based on the information reviewed in the DEIR, the underground bypass and the U-frame channel modification from Greer Bridge to Alma Street are the environmentally superior alternatives. These alternatives reduce impacts to biological resources, avoid contaminated soils in the footprint of the proposed bypass channel, and reduce visual impacts by reducing floodwall and headwall extensions. Furthermore, impacts could be mitigated on-site. For these reasons, it would be appropriate to support the approval of the environmentally superior alternative over the preferred alternative.

Response 4: The U-frame channel modification from Greer Bridge to Alma Street will not change the required headwall heights at the Greer Road Bridge. Thus, this alternative will not reduce the visual impacts at Greer Road, where they are most significant, as described on pages 98 and 99 of the Draft EIR. The reader is also referred to the District's response to the City of Palo Alto Planning Division (Section III-C, Comment 2).

Comment 5: Alternative modifications to Matadero Creek upstream of Highway 101 involving reconfiguring the existing maintenance road and right-of-way to increase channel capacity and reduce flood wall and headwall elevations should be discussed.

Response 5: Chapter 6 of the Draft Engineer's Report, bound with the EIR, evaluates various channel modifications along Matadero Creek to provide for one-percent protection as per FEMA standards. One alternative that was evaluated would involve modifying the creek channel from trapezoidal shape to a U-frame shape between Greer Road and Alma Street. As presented in the discussions in Chapter 6, there is very little room to maneuver in this particular creek. The south bank of the creek has perhaps a 3- to 5-ft wide right-of-way, and in some cases, the back yard fences of residential properties abut the floodwalls. The north bank of the creek has a 10- to 15-ft wide maintenance road, for District vehicle access. Buried underneath this maintenance road are two 60kV high-voltage power transmission lines encased in steel conduits and surrounded by thermal sand backfill. This utility, maintained by the Palo Alto Light and Power Department, supplies power to a large part of Palo Alto, including the Stanford Research Park. Even if the District's maintenance access road were to be narrowed to expand the channel width, the presence of these buried transmission lines would severely limit such improvements.

Comment 6: The District will need to develop a plan to characterize excavated material to ensure that contaminated soil and sediment is disposed of properly and that residual soils are not contaminated.

Response 6: As stated in Section II-F of the Draft EIR (Section VII-F of this Final EIR), the District will prepare a Soils Management Plan to be submitted to the City of Palo Alto prior to project initiation.

Comment 7: A site visit and presentation of the alternatives by District staff as well as an opportunity to discuss the comments in this letter would be greatly appreciated.

Response 7: The District staff and their consultants are prepared to set a date and time with you for a site visit.

E. RESPONSE TO COMMENTS FROM CALTRANS, DATED NOVEMBER 19, 2001 AND DECEMBER 4, 2001.

Comment 1 (November 19, 2001): There are a number of existing State-owned storm drainage facilities that outlet to Matadero and Barron Creeks at the State Route 82 (El Camino Real) and U.S. Highway 101 crossings. The proposed creek channel lining improvements should accommodate existing State storm drainage facilities.

Response 1 (November 19, 2001): The proposed project work does not include any channel lining improvements in either Matadero or Barron Creeks at the Highway 101 or El Camino Real bridge crossings.

Comment 2 (November 19, 2001): We would also like the opportunity to review the project plans as they progress so we can ensure that our bridges and storm drainage facilities are addressed in the design of the proposed project.

Response 2 (November 19, 2001): District staff will provide you a set of project plans for your review during the design phase of work.

Comment 1 (December 4, 2002): In order to complete our review of the draft EIR our Structures Hydraulics branch would like to review the following information as soon as possible.

A copy of the hydraulic model for the US highway 101 bridge at Matadero Creek

Scour analysis for the US 101 bridge, as well as "before" and "after" project water surface elevations and channel velocities.

In addition, although there is hydrology information in the EIR, the report does not state the hydraulic effects as a result of the proposed project to our State Bridge.

Response 1 (December 4, 2001): The hydraulic analyses for existing conditions indicated that the Highway 101 bridge is pressurized under one-percent flow conditions. With the proposed overflow bypass, the increased conveyance capacity downstream of 101 eliminates the bridge pressurization during the one-percent event.

The requested information was forwarded to Caltrans on December 13, 2001.

ORGANIZATIONS

F. RESPONSE TO COMMENTS FROM STREAMS FOR TOMORROW, DATED NOVEMBER 19, 2001.

Comment 1: We have the following comments for your consideration on the Draft Environmental Impact Report (DEIR) for the Matadero/Barron Creeks Long-Term Remediation Project (Project). Our comments focus on a single issue - mitigation for losses of riparian habitat.

The DEIR identifies that willow riparian habitat along Matadero Creek downstream of Highway 101 will be adversely affected by implementation of the proposed Project, and this effect would be a significant impact pursuant to the California Environmental Quality Act (CEQA). Although the District would employ impact avoidance and impact minimization measures, an unavoidable loss of riparian habitat would occur as a result of constructing the overflow bypass channel and sediment basin. The District has calculated a riparian habitat compensatory mitigation requirement of 2.91 acres.

The District has chosen to provide the required riparian habitat compensatory mitigation solely by creating new riparian habitat, which would be created predominately at off-site locations. However, alternative/additional mitigation measures exist, as evidenced by the identification of "Enhancement No. 2 - Restoration of Matadero Creek downstream of Highway 1 01 to a more natural riparian habitat' (DEI R pages 12 to 13). Although presented as a possible enhancement opportunity pursuant to District Board policy and not part of the proposed Project evaluated in the DEIR, this on-site riparian habitat restoration proposal does represent an additional, valid mitigation measure to address Project impacts to local riparian habitats.

The purpose of compensatory mitigation is to offset unavoidable impacts by replacing lost habitat functions and values. For the Project, the purpose of riparian habitat compensatory mitigation is to replace existing riparian habitat functions and values on lower Matadero Creek that will be adversely impacted by construction of the overflow bypass channel and sediment basin.

Resource and regulatory agencies generally place highest priority and preference on "in-kind, on-site" mitigation alternatives. Such compensatory initiation seeks to restore or duplicate the physical nature of the habitat lost and to accomplish this within or adjacent to the project site where the unavoidable impact occurred.

This "in-kind, on-site" approach tends to assure that (1) the habitat restored or created is essentially identical to that which was lost; (2) the mitigation actually benefits the local fish and wildlife species and populations-adversely effected at the project site; (3) the mitigation contributes to maintaining local fish and wildlife population levels; and (4) the mitigation contributes to a greater degree of certainty that the ecological benefits provided-by the remaining habitat in the protect area are retained.

The Project proposes to provide only 0.37 acre of riparian mitigation (riparian habitat creation) within and adjacent to the project area on lower Matadero Creek. This would be on-site, in-kind mitigation. The remaining 2.54 acres of riparian mitigation is proposed as "Off-site Mitigation" at locations on San Francisquito Creek, Hale Creek, and/or upper Matadero Creek. According to the DEIR, the preferred location for off-site mitigation is San Francisquito Creek. None of the off-site locations are large enough to accommodate all of the remaining mitigation acreage; therefore, at least two off-site locations will be necessary to satisfy the riparian mitigation requirements of the Project.

Thus, as described in the DEIR, only 13 % (0.37 acre) of the Project's riparian mitigation will be on-site mitigation benefiting the local fish and wildlife resources impacted by this Project. The remaining 87 % of the Project's riparian mitigation will be off-site mitigation dispersed at two or more sites in different watersheds and/or in upper reaches of the stream, where the mitigation will not directly benefit the local fish and wildlife populations actually effected by the Project.

This scenario of off-site mitigation comprising 87 % of the Project's riparian habitat compensatory mitigation would be reluctantly acceptable if no feasible on-site alternative mitigation measures were available. However, this is not the case. Restoring riparian habitat functions and values along the lower Matadero Creek riparian corridor downstream from Highway 101 as described in "Enhancement No. 2" is a feasible and desirable alternative/ additional mitigation measure - a measure that would provide priority, preferred on-site, in-kind mitigation.

Restoration of lower Matadero Creek would improve riparian functions and values in this area by removing all non-native vegetation and replanting the exposed areas with native vegetation. This restoration effort would improve riparian functions and values in a reach of stream described in pre-project context as representing 'fairly high-quality wildlife habitat due to the dense nature of the vegetation, the presence of a well-developed understory, and its bayside location." (DEIR page 41).

Restoring riparian functions and values by removing exotic plant species and replanting with native vegetation is a well accepted mitigation measure to compensate for impacts to riparian habitats. In fact, the District has employed exotic plant removal as compensatory mitigation for Stream Maintenance Program impacts to riparian vegetation, whereby loss and degradation of riparian vegetation - loss of riparian functions and values - is mitigated by removal of exotic giant reed within riparian corridors.

Habitat restoration has advantages over creating new habitat. Restoring habitats degraded by invasive exotic plant species utilizing proven techniques increases the likelihood -of successful mitigation, builds upon an existing baseline of physical, chemical and biological

The DEIR does not consider all reasonable and feasible on-site mitigation measures which would substantially lessen the significant effects of the Project on important local riparian habitat functions and values. As a result of this deficiency, on-site mitigation comprises only 13 % of the Project's riparian habitat compensatory mitigation, whereas the great majority of this mitigation (87 %) is dispersed to multiple off-site locations.

The Final EIR must maximize on-site riparian mitigation by including lower Matadero Creek riparian restoration in the Project's identified riparian habitat compensatory mitigation requirements.

Riparian habitat restoration is a valid and feasible mitigation measure. Pursuant to CEQA Guidelines Section 15126.4(a)(1)(B), "Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified." The Final EIR must include this discussion and determination in the event riparian restoration is rejected as mitigation and not incorporated into the Project's mitigation requirements. We are not aware of any valid justification for rejecting on-site restoration as a Project mitigation measure.

Like all concerned members of the public, Santa Clara County Streams For Tomorrow relies on the District's environmental document for an accurate and thorough assessment of the Project's likely impacts and identification of effective mitigation measures. For the reasons stated in this letter of comment, we believe the DEIR is flawed regarding mitigation of riparian habitat impacts. Therefore, we recommend against certifying the-DEIR until the concerns and recommendations presented in this letter of comment have been fully addressed in a revised environmental document.

Response 1: Enhancements to the on-site riparian corridor were first suggested during the writing of the DEIR. In response to comments received on the Draft EIR, District staff is incorporating Enhancement No. 2 into the Matadero/Barron Creeks Remediation Project as on-site mitigation. This will increase the on-site mitigation by 0.6 acres, bringing the total on-site mitigation to approximately 40 percent of the total required mitigation. Mitigation for all impacts on-site is, unfortunately, infeasible; however, in-kind mitigation is possible at the site on San Francisquito Creek. This site is in the same geomorphic setting (adjacent to San Francisco Bay) and is located one watershed north of Matadero Creek. A preliminary survey of the mitigation potential of this site shows it is capable of containing the remaining mitigation acreage, and would make it the only off-site mitigation area.

G. RESPONSE TO COMMENTS FROM MARK THOMAS AND COMPANY, INC., DATED NOVEMBER 30, 2001.

Comment 1: Mark Thomas & Co. has reviewed the draft Environmental Impact Report/Engineer's Report and in general, there are a few inconsistency issues with respect to the report. The front portion of the EIR recommends how to achieve the project objectives. However, some of the items in this portion are either not clear or do not coincide with the conclusion of the engineering study in Appendix B. The specific comments are as follows:

One of the main objectives of the project is to "obtain a letter of map revision from FEMA to remove the existing flood prone areas from the Flood Insurance Rate Map. However, the Engineer's Report mentions that since the flood basin levees do not meet FEMA standard and will not be upgraded to conform to this standard through this particular project, areas currently mapped within the one-percent tidal floodplain will remain so mapped. There is some confusion between what areas are being helped by this project.

Response 1: Text amendments in Section IV of this FEIR (Section I.C. Project Objectives) provide the requested correction.

Comment 2: Page 6 of the EIR describes the channel modifications upstream and downstream of Louis Road. The modifications include replacing the trapezoidal channel with a U-shaped channel extending approximately 65 feet under Louis Bridge, a 40-foot transition upstream and a 20-foot transition downstream (125 feet total). Later in the report, on page 61 the modification is specified at approximately 120 feet in length.

Response 2: Page 61 will be changed to read "approximately 125 feet" in the text revisions in Section IV of this FEIR.

Comment 3: The EIR states that the bypass channel would be constructed within the District's right-of-way along the north and southeast edges of the MSC. However, on some of the figures, it appears as if the bypass channel may cut into the MSC property on the NE corner (Figure 10). The engineer's report also states that this bypass channel will require 0.16-acre right of way acquisition from the MSC.

Response 3: This is correct. The bypass channel will cut into the MSC at the northeast corner.

Comment 4: Under Enhancement No. 1 on page 12, the EIR states that the "proposed bypass channel requires a 3-foot tall floodwall on the western edge of the channel." However, this requirement is not mentioned elsewhere when describing this alternative. On page 6-8 and 7-5 of the engineer's report a proposed vertical wall or levee around the MSC is described, but the connection between the two statements is unclear.

Response 4: A floodwall will be required between the bypass channel and the MSC. The wall will need to be at an elevation of 8 feet NGVD. The text will be revised to clarify this part of the project. See Section IV of the FEIR for text revisions.

Comment 5: Would the enhancement trail, benches and vegetation/visual enhancements be placed within the 10-foot construction buffer zone of the proposed bypass channel? The EIR states that it will be placed "between the floodwall and the fence of the MSC boundary" (page 12). However, Figures 4 on page 8 and 6-5 on page 6-15 show the floodwall abutting the MSC and does not show the construction buffer.

Response 5: Yes, the enhancement trail would be placed within the 10-foot construction buffer zone. Figure 4 in the Draft EIR and Figure 6-5 in the Draft Engineer's Report have been modified to present this proposed enhancement.

Comment 6: The overflow bypass channel cross-sections shown in the EIR are inconsistent. In general, the bypass channel is described to be 60 feet in width, with a 10-foot construction buffer on each side. However, Figure 6-5 on page 6-15 shows a cross-section with a width of 58 feet and does not show the construction buffer zone. Figure 4 on page 8 of the EIR, while nearly identical to Figure 6-5, shows a bypass channel width of 60 feet. In addition, Figure 7-2 on page 7-6 shows a 50-foot channel section with a 10-12 foot construction zone, but does not show the floodwall.

Response 6: Figures 6-5 and 7-2 have been modified to represent a 60-feet wide bypass as the proposed project described in the EIR.

Comment 7: There is come confusion between two separate statements in the EIR regarding relaxing FEMA's freeboard requirements. Page 9 of the EIR states that "if the freeboard criteria can be relaxed, the required wall heights between Greer Road and Louis Road might be reduced to 5.3 feet". The statement on page 99 is "If the freeboard criteria can be relaxed, the required floodwall heights could be reduced by up to 5.3 feet in the most optimistic case". To 5.3 feet and up to 5.3 feet are very different statements.

Response 7: The statement on page 9, "if the freeboard criteria can be relaxed, the required wall heights between Greer Road and Louis Road might be reduced to 5.3 feet" is the correct statement. Subsequent hydraulic analyses that have been submitted to FEMA using risk-based freeboard criteria now indicate that at the Greer Road Bridge, the required wall height would be reduced to 5.0 feet. At the Louis Road Bridge, the required wall height would be reduced to 4.3 feet. Page 99 will be revised to reflect the correct information.

Comment 8: The EIR does not mention anything about the new warped transition that will be constructed on the south channel back at the downstream face of the Alma Street/SPRR culvert and the improvements to an existing 84-inch diameter storm drain outfall as part of the project. The first time this is mentioned is in the Engineer's Report (page 7-1).

Response 8: The warped transition is a minor part of the overall project and did not warrant discuss in the impact section. However, the project description will be revised to include the reference. Please see Section IV of this FEIR for text revisions.

INDIVIDUALS

Written Comments

H. RESPONSE TO COMMENTS FROM JOHN NICHOLS, DATED NOVEMBER 02, 2001.

Here are my suggestions or concerns about the Matadero/Barron Creek project.

Comment 1: On the inside of the creek install ladders ever 500 feet. This will serve several purposes.

1. Safety first. They will allow easy and fast escape in case of emergency. If someone gets hurt in the creek, or caught in rising waters, then speed is important.
2. Birds need some perches near the water. Phoebes in particular like to perch low and close to the water to catch insects.
3. The suggestions for the steps: either molded (i.e. recessed) foot holds built into the walls. Or, the steps could be made out of reinforcement bar bent into a U shape and projecting out.

Response 1: The District does not have standard requirements for ladder installation within the creek channel. However, it is a good feature to provide one or two ladders in each reach for access purposes, and the District will install them approximately every 1,000 feet.

Comment 2: A few perches designed for Kingfishers. There are several resident ones. They currently use the occasional wire that crosses the creek. Maintain a nesting area for the Kingfishers.

Response 2: The District has no plans to install additional wires crossing the creek for Kingfisher perches. The raising of floodwalls along the creek and across the bridges should not impact existing nesting areas for the Kingfishers.

Comment 3: No design or pattern on the flood wall. This requires less maintenance and the style won't go out of date.

Response 3: These are valid points, though maintenance is not considered to be a significant issue. Details will be worked out through the City's architectural review process. The District will consider using simpler colors and textures for wall treatments.

Comment 4: Create a path from West Bayshore to Alma along the creek. This will allow bicyclist and pedestrians to get off our crowded and less safe streets where far too many people get injured by cars. This will complement Palo Alto's Bryant St. bicycle boulevard in that it would be in a perpendicular direction.

Response 4: The District would not normally initiate the creation of a path on the top of the bank. The City could take the initiative for such a project and request a joint-use policy with the District, but the City would have to assume the liability for the path use.

Comment 5: Create cracks or crevices along the bottom edge of the outside wall for Western Fence Swifts, or salamanders to hide in.

Response 5: Your comment is noted. Due to concerns voiced by other creek-side neighbors in this area regarding structural integrity of the floodwalls, the District will maintain a solid base at the bottom edge of the floodwalls.

I. RESPONSE TO COMMENTS FROM ELLIE GIOUMOUSIS, DATED DECEMBER 03, 2001.

Comment 1: The Draft Environmental Impact Report (DEIR) for the Matadero/Barron Creeks Long-Term Remediation Project has concerns for me as a member of the Santa Clara Valley Chapter of the California Native Plant Society in that it will result in permanent loss of a third of the Matadero Creek baylands riparian corridor.

Response 1: The proposed bypass will not impact a third of the Matadero Creek riparian corridor. It should be noted that not all of the Matadero Creek riparian corridor was mapped as part of this project. Biological mapping was performed for this EIR, but was limited to the vicinity of the proposed overflow bypass. Therefore, the existing area of riparian habitat along Matadero Creek downstream of Highway 101 is greater than that shown in the EIR. The biological consultant's report is provided in Appendix A of the EIR. The biological mapping concluded that 3.18 acres of willow riparian habitat exist within the mapped area. The EIR has stated that 0.78 acres of riparian habitat will be lost due to the construction of the overflow bypass. This amounts to approximately 25 percent of the existing riparian habitat identified within the limited mapped area. To insure that the riparian habitat is fully mitigated, 2.34 acres of mitigation have been proposed to compensate for the impacts to 0.78 acres.

Comment 2: This riparian corridor contains valuable native trees such as California buckeye, cottonwood, maple, walnut and willow. Historically it meandered to such a degree in this baylands marsh region as to establish a full riparian woodlands the width of 150 to 250 feet.

The understory freshwater vegetation was noted in the 1976 Engineer's Report for the flood basin to be hastata, or fat hen, coyote brush, horseweed, barnyard grass, spearmint, sickle grass, California blackberry, pickleweed, prairie bulrush, alkali marsh butterweed, cat-tail and cocklebur. Many of these species are readily visible, along with non-native invasives. This is still a very worthwhile wetland vegetation community and not to be easily replicated.

The rationale for this floodway bypass is not so fully documented to make me feel that this intrusion into the riparian wetlands of the flood basin is necessary. As designed this bypass will result in a permanent removal of up to 75 feet in width of this vital riparian habitat, for over a third of a mile. This is a loss that can not be mitigated for in kind or in place.

Consideration of uplands, behind a raised San Francisquito levee, to mitigate for wetlands lost on Matadero Creek is not a viable alternative.

Thank you for consideration of my concerns on this project as proposed.

Response 2: All of the wetland impacts will be mitigated on-site. Only some of the impacts to riparian habitat will be mitigated off-site at the San Francisquito Creek location. Furthermore, the on-site mitigation was planned so as to provide the maximum area of habitat restoration before using any off-site locations.

J. RESPONSE TO COMMENTS FROM DON MAYALL, DATED DECEMBER 03, 2001.

Comment 1: In response to the Draft Environmental Impact Report (DEIR) for the Matadero/Barron Creeks Long-Term Remediation Project, there are concerns that our Santa Clara Valley Chapter of the California Native Plant Society has in regards this loss of a considerable portion of the Matadero Creek baylands riparian corridor.

The Palo Alto Flood Basin is City of Palo Alto parkland and historically has been managed as a baylands preserve to provide habitat for the extensive bird species that feed and nest there, as well as for the migratory waterfowl of the Pacific Flyway. Its use as a flood management retention basin has been quite compatible with this successful preservation of a range of unique habitats.

The riparian corridor included such native vegetation as California buckeye, cottonwood, maple, walnut and willow. The historic corridor was established along the Matadero Creek meander, as seen in the attached exhibit from the September 1976 Engineer's Report and Final EIR for the Palo Alto Flood Basin. As constricted by the levees on either side, this meander goes from a 250' width, just downstream from #101, to 150' as it empties into the flood basin.

The understory vegetation has such natives as coyote bush, California blackberry, cat-tail, and prairie bulrush. Three plants found here are associated specifically with salt marshes: pickleweed, alkali march butterweed, and fat hen. This wetlands community would be hard to replicate in the uplands on San Francisquito Creek.

We are opposed to degradation and loss in this riparian corridor, especially at the narrow end of this former meander as Matadero Creek enters the open flood basin. As designed, this flood bypass will result in a permanent loss of up to a 75' width of this vital riparian habitat for over a third of a mile. This loss cannot be mitigated.

Response 1: The wetland mitigation will occur on-site immediately adjacent to existing wetlands within the Palo Alto Flood Basin. No wetland mitigation is proposed off-site. The impacts to riparian habitat can be fully mitigated by a habitat restoration plan that includes both on-site and off-site riparian revegetation. Furthermore, to insure that the riparian habitat is fully mitigated, 2.34 acres of riparian mitigation have been proposed to compensate for impacts to 0.78 acres of riparian habitat. This accounts for the temporal loss of habitat as well as the uncertainties associated with habitat restoration in general. This habitat mitigation proposal conforms to the requirements of the California Department of Fish and Game.

K. RESPONSE TO COMMENTS FROM LIBBY LUCAS, DATED DECEMBER 03, 2001.

Comment 1: In regards the Draft Environmental Impact Report (DEIR) for the Matadero/Barron Creeks Long-Term Remediation Project, I have major reservations about this flood control project. I do not feel that it respects the integrity of the Palo Alto flood basin design nor does it provide the watershed management principles for an integrated system for optimum preservation of beneficial uses of Matadero Creek.

Response 1: The proposed remediation has been designed to function within the current operational design of the Palo Alto Flood Basin (PAFB) as will be described in greater detail later in responses to this letter. Appendix G of the Draft Engineer's report fully describes the analyses that were conducted to incorporate the proposed flood management improvements with the PAFB operations. The proposed remedial work will:

- Allow for Barron Creek to remain undisturbed;
- Allow the riparian corridor along Matadero Creek from its tributary sources downstream to El Camino Real to remain undisturbed; and
- Compensate for the loss of riparian and wetland habitats downstream of Highway 101.

Comment 2: Initially, one must review the constraints of the project area. The 5.5 feet of ground subsidence has placed Palo Alto residences near Bayshore in a flood prone zone not of their own making. U.S.G.S warned authorities of this deteriorating condition for some thirty years before any remedial action was taken and pumping of groundwater restricted. The District and the City of Palo Alto have a strong vested interest in preventing flooding both now and in the future in this area.

Response 2: This comment is consistent with the EIR and the Engineer's Report. The Draft Engineer's Report (ER) describes the land subsidence that began in the 1920s on Page 2-19.

Comment 3: The region of the Palo Alto Flood Basin, bordered on the northwest by Mayfield Slough and on the east by Charleston Slough, was the historic marshlands of Matadero Creek as it wound its way to San Francisco Bay. Barron Creek appears to have joined with the main stem of Matadero upstream. Permanente Creek has its own slough and outlet to San Francisco Bay as did San Francisquito Creek and Steven Creek. Do you agree on these historic conditions?

Response 3: Page 2-3 of the ER provides a description of historic conditions that is consistent with this comment.

Comment 4: The Permanente Creek watershed is now portioned out between Adobe and Stevens Creeks. So, now, the Matadero Creek basin receives Adobe Creek flows as well as much of Permanente Creek's. The 5.5 foot subsidence was helpful for retention basin purposes for Palo Alto, but the contribution of flood flows from Black Mountain and the Monte Bello Ridge is more than likely to overwhelm the basin. It is in this area of watershed management that this EIR is deficient in that it does not address this cumulative flood flow problem? Have I missed this data?

Response 4: The EIR and ER address the hydrology of the entire PAFB watershed, which includes Adobe Creek, Barron Creek, Matadero Creek, and the Coast Casey Pump Station in Mountain View. One-half (50 %) of Black Mountain and the Monte Bello Ridge drains to Stevens Creek. Another one-third of this area drains to Permanente Creek. Neither Stevens Creek nor Permanente Creek flows into the PAFB. The remaining one-sixth of the Black Mountain and Monte Bello Ridge areas drains to Adobe Creek, and this area was included in the hydrologic analyses for the PAFB watershed. Appendix F of the ER describes the watershed studies. Appendix G details the Palo Alto Flood Basin analyses. Additional technical information has been submitted to FEMA for review and is available upon request.

Comment 5: In one hundred year flood conditions, with high water in San Francisco Bay, the Palo Alto Flood Basin would have its tidal gates closed to tidal action, and a storm event of 72 hour duration would probably result in a full flood basin that would most likely result in backwater to Matadero Creek. The proposed bypass channel would not provide any relief. Where is the support data on the EIR?

Response 5: Yes, given a one hundred-year flood condition, with high water in San Francisco Bay, the Palo Alto Flood Basin would have its tidal gates closed to tidal action, and a storm event of 72-hour duration would probably result in a full flood basin that would most likely result in backwater to Matadero Creek.

During the time of maximum, or peak flow (3,100 cfs) in Matadero Creek, the period of peak flows occurs about 6 hours before the PAFB fills up. As in our reply to the City of Palo Alto Public Works Department's (Section III-A, Comment 11), the proposed overflow bypass will increase the conveyance capacity of Matadero Creek downstream of 101, and that will reduce the backwater effects during this critical time.

When the Palo Alto Flood Basin does fill up, there will also be backwater effects at 101. At that point in time, however, the peak flood will have passed, and only about 1,200 cfs will be flowing in the creek. The backwater effects from a full Palo Alto Flood Basin would not pose as great a threat to flooding upstream of 101 because the creek flows are now only about 40% of the peak flow of 3,100 cfs.

The supporting information for this remedial project proposal is found in Appendix G of the Draft ER. Specifically, Table G-8 demonstrates that in 1998, the lack of flood flow conveyance through the existing Matadero Creek channel between E. Bayshore Road and the PAFB caused more backwater than high levels in the PAFB itself. The proposed overflow bypass is intended to relieve this problem, by providing additional flow conveyance that the restricted Matadero Creek channel cannot provide.

The Draft ER also examines what flood protection measures will be required if the bypass is not constructed. On Page 5-23, Table 5-3 provides the existing and increased heights of floodwalls along Matadero Creek to provide one-percent flood protection. In addition to these higher floodwalls, a floodwall would have to be constructed around the City's Municipal Services Center, and the levees between Matadero Creek and Renzel Marsh would have to be raised to protect the marsh from creek overflows.

The table on the following page illustrates the results of the hydraulic analyses for computing water surface elevations, both in the Palo Alto Flood Basin and at various crossings along Matadero Creek. The time (in hours) in the table reflects the engineer's simulations of a one-percent, 72-hour storm event.

As shown in this table, the peak flow in Matadero Creek at Highway 101 occurs during Hour 42 (3,060 cfs). With no overflow bypass downstream of Highway 101, the water surface elevation at E. Bayshore Road would be 8.3 feet. If a bypass is constructed, thus increasing the flow conveyance capacity just downstream of this crossing, the water surface elevation at the time of peak Matadero Creek flows would rise to only 5.3 feet -- a 3-foot drop in water surface! This backwater relief is evident not only in the vicinity of Highway 101, but can be observed upstream as far as Ross Road. Reading across the table for Hour 42 of the storm, the drop in water surface at both Greer and Louis Road Bridges would be almost 2 feet with the bypass in place, and about 1.4 feet at Ross Road.

Maximum Water Surface Elevations with and without Downstream Bypass

Time in a one-percent, 72-hour storm event (hours)	Water Surface Elevation in PAFB (ft) NGVD	Matadero Creek Discharge (cfs)	Water Surface Elevation (ft) NGVD							
			E. Bayshore Rd.		Greer Road		Louis Road		Ross Road	
			No bypass	With Bypass	No Bypass	With Bypass	No Bypass	With Bypass	No Bypass	With Bypass
40	2.9	1,670	5.25	3.64	6.41	5.46	6.75	6.05	8.28	8.28
41	3.5	2,580	7.46	4.52	9.23	7.65	10.05	8.61	10.27	10.27
42	4.4	3,060	8.30	5.27	10.66	8.77	11.96	10.13	13.51	12.14
43	5.0	2,580	7.49	5.41	9.25	7.97	10.08	8.88	10.28	10.27
44	5.2	1,990	6.66	5.41	7.80	7.00	8.24	7.50	9.06	9.06
45	5.0	1,600	6.04	5.13	6.92	6.23	7.19	6.56	8.10	8.10

This table was prepared by Schaaf & Wheeler specifically to address Comment 5 from Ms. Libby Lucas.

Comment 6: The hydrologic data on San Francisquito Creek is important in that it was the surface sheet flows of San Francisquito that reached the low lying residences east of Oregon Expressway and backed up by Bayshore and the sound wall (and non-functioning #101 drainage conduits)? The Matadero Creek street flooding was due to street drains not being able to empty into the high flowing Matadero Creek? These sources of floodwaters need to be identified in this document in order to assess the best remedial actions, or at least appropriate actions? If the San Francisquito Creek overflow conditions at street bridges are not remedied, is there any possibility of high water getting in behind the Matadero floodwalls? Should floodwalls be raised on Matadero Creek before flooding problems on San Francisquito are remedied?

Response 6: Your observations regarding surface sheet flows from San Francisquito Creek and Matadero Creek street flooding are correct.

With regards to "these sources of floodwaters," the Draft Engineer's Report addresses San Francisquito Creek flooding on pages 2-19 through 2-28, page 7-31, and in Appendix F. Residual flooding from local storm drain capacity limitations is addressed on pages 7-31 and 7-32 of this report. Raising floodwalls could potentially affect the depth of inundation from other sources of flooding. However, the elevation of residual flooding due to local storm drainage capacity restrictions (Figure 7-8) is 5 feet NGVD and not affected by proposed floodwall improvements. Similarly, overflow from San Francisquito Creek (Figure 2-5) is relieved at Highway 101 through an open median barrier, and ponding depths are controlled by the elevation of the PAFB and Renzel Marsh levees rather than Matadero Creek floodwalls.

With regards to your last question, remedial action on San Francisquito Creek is outside of this project's scope, and remedial action regarding local storm drain capacity issues is outside of the District's jurisdiction.

Comment 7: If the #101 culvert is out of the scope of this DEIR study I feel there is a disconnect in the backwater discussion that makes this study deficient and the Palo Alto Flood Basin hydrology demands a separate DEIR of its own.

Response 7: Both the Highway 101 culvert on Matadero Creek and the Palo Alto Flood Basin were studied in detail for this Draft EIR. The PAFB hydrology is discussed extensively in Appendix G of the Draft Engineer's Report. It is true that, for this project, no remedial work is necessary for the Highway 101 Bridge. This bridge contributes little to backwater due to its large opening. Remedial work for the Palo Alto Flood Basin could fall under the scope of a separate project.

Comment 8: Watershed hydrology is presenting a problem for me in my layman's math. To return again to the constraints of the project site, I wish to review the base data with which I am working.

The Palo Alto Flood Basin is 600 acres. (1976 Engineer's Report/EIR)

"The completed basin will have a capacity in excess of the 3,596 acre feet required to contain a design flood" (p. 16 DEIR Coast Casey Pump Station Project 75-8, 1977)

Peak Flow Rate	#101	P.A. Flood Basin for 48-hour flood event
Matadero	2000 cfs	2400 cfs
Adobe/Barron	3550 cfs	4500 cfs
Ad/Barron/&Mat	5050 cfs	6575 cfs

(1976 DEIR Engineer's Report)

Response 8: The numbers presented here are taken from Table 2, page 21 of the 1976 Engineer's Report and Final EIR. The values for peak flows from the various creeks are correct at 2,000, 3,550, and 5,050 cfs, respectively. The other numbers listed actually represent the total volume of flow into the PAFB from these creeks in acre-feet, not cubic feet per second (cfs). These are not instantaneous flow rates. Therefore, as presented in Table 2, the units should read 2,400 acre-feet; 4,500 acre-feet; and 6,575 acre-feet.

Comment 9: The Coast Casey Pump Station Project 75-8 is the DEIR that covered Permanente Creek's diversion of storm water flows to the Palo Alto Flood Basin.

Response 9: Permanente Creek flows into the Mountain View Slough. The Coast Casey Pump Station does discharge to the Palo Alto Flood Basin. Its drainage area is about 1.6 square miles of residential and light industrial zones in the City of Mountain View. This drainage area is bounded by San Antonio Road, Central Expressway, and Rengstorff Avenue and extends across Highway 101 to Shoreline Park. The maximum pumping rate of the Coast Casey Pump Station is 170 cfs.

Comment 10: When I attempt to compute the volume of flood flow for the 72 hour storm event with these 1976 cubic feet per second flow rates I arrive at a total of 4,105 ac. ft.

Response 10: As stated earlier, Table 2 of the 1976 Engineer's Report provides both the instantaneous peak flow rate in the creeks (in cubic feet per second, or cfs) and the total volume of flow to the PAFB in the 48-hour storm (in acre-feet). The peak flows provided herein are instantaneous flow rates, not a steady flow that would be observed for the entire 48-hour storm event. The response of a watershed to a rainfall event varies, depending on a number of factors such as the time lapse since the previous rain event, the level of soil moisture, the extent and location of impervious surfaces in the watershed, etc. Runoff from a 48-hour storm event would likely be low when a storm begins, then would gradually or dramatically increase as rainfall continues, until it would reach a peak flow rate, which may only last a few minutes. The runoff would then diminish over time as the storm wanes.

The calculation to obtain a total of 4,105 ac-ft. was probably based on the following: If the number of 2,400 cfs and 4,500 cfs (which in reality are acre-feet values) are added together to get a combined flow of 6,900 cfs, and then multiplied and/or divided as shown:

6,900cfs * 60sec/min * 60 min/hr * 72 hours ÷ 435,600 cu.ft./ac-ft. = 4,105 ac-ft

The two basic flaws of this calculation are:

1. It assumes that 6,900 cfs flow into the Palo Alto Flood Basin for the entire 72 hours of the storm. The peak flows from Table 2, in actuality 2,000 cfs for Matadero Creek and 3,550 cfs for Barron/Adobe Creeks, are instantaneous flows, the highest flows one would anticipate during a one-percent 48-hour storm, but flows that would only last for a short period of time, then begin to diminish.

2. The number of cubic feet contained in one acre-foot is 43,560, not 435,600.

Based on the information provided in Table 2 of the 1976 ER, a 48-hour storm event with a maximum instantaneous flow rate of 5,050 cfs from Matadero/Barron/Adobe Creeks combined, will deposit 6,575 acre-feet of runoff to the PAFB.

Comment 11: When I compute the volume of flood flow for the 72 hour storm event using the 2001 DEIR Draft Engineer's Report for Matadero/Barron Creeks Long-Term Remediation Project, Volume I, reference Table 2-4 Peak Flood Discharges (p.2-24) . . . I get a deposition of 1844.6 acre feet of flood flow to the Palo Alto Flood Basin. Add to this the 72 hours of Adobe/Barron Creek flows at 4500 cfs, or 2677 acre feet, and one reaches a total 1% flood flow into the basin of 4521.6 acre feet.

Response 11: Table 2-4 of the Draft Engineer's Report (page 2-24) provides a "Proposed Design Discharge" of 3,100 cfs for Matadero Creek at Highway 101. As discussed in the response to comment number 10, this is an instantaneous peak flow rate, the highest flow rate that one would observe on Matadero Creek during a one-percent, 72-hour storm event. One should not compute the total volume of runoff using 3,100 cfs for the entire 72-hour period.

Comment 12: The Permanente Creek flows I can't find quantification for but they must bring the total up to over 5000 acre feet.

Response 12: As was stated earlier, Permanente Creek flows to the Mountain View Slough.

Comment 13: Isn't this over capacity for the Palo Alto Flood Basin and doesn't this make any concern over backwater effect in the 72 hour 1% flood event a mute point?

Response 13: As discussed in Appendix G of the Draft Engineer's Report, a one percent, 72-hour storm event will result in a significant inflow of runoff to the Palo

Alto Flood Basin. Figure G-9 in the Draft Engineer's Report provides the results of hydrologic simulations that were performed for a 72-hour storm event. This figure tracks both the inflow rates from Matadero Creek alone, Matadero/Adobe/Barron Creeks combined, and the resulting water surface elevation (or stage) in the PAFB. The predicted stage in the PAFB reaches approximately 6.5 feet NGVD about five hours after the peak Matadero Creek inflow reaches the PAFB. This simulation was performed assuming higher-than-normal tidal elevations, but the PAFB stage fluctuates during the storm and in the days following because discharges from the PAFB to San Francisco Bay do occur via the tide gates during low tide. Though the total volume of runoff entering the PAFB may exceed its dead storage capacity, the PAFB is a dynamic system. In Figure G-9 the peak stage of 6.5 feet NGVD occurs around Hour 48, but within 6 hours has already dropped over 3.0 feet due to discharge to SF Bay via the tide gates.

To address the concern about backwater effects, please refer to Table G-5 in the Draft Engineer's Report. According to our hydrologic simulations, the peak flow rate on Matadero Creek (3,100 cfs) at Highway 101 occurs at Hour 42 of the 72-hour storm. The existing Matadero Creek channel downstream of 101 simply doesn't have the flow capacity to efficiently convey this amount of flow to the PAFB; therefore, the water backs up, creating backwater effects as far upstream as Ross Road. The water level, or stage in the PAFB at Hour 42 is only 4.6 feet NGVD, not nearly high enough to hold back the waters rushing down Matadero Creek. The peak stage in the PAFB (6.5 ft.) occurs approximately 5 hours later (Hour 47), but as noted in Table G-5, the Matadero Creek flows at Highway 101 have dropped to only 1,250 cfs at this point in the storm event, and backwater effects are not an issue.

Comment 14: This flood basin should be the flood protection for Matadero and Barren Creeks and if the remediation project is implemented then Adobe Creek should go back to its historic outfall to Charleston Slough, and Permanente Creek to Mountain View Slough.

Response 14: If Adobe Creek were to be rerouted to Charleston Slough, the lower reaches of Adobe Creek would not be protected from the one-percent tidal elevations, and higher floodwalls would have to be added along the creek. Rerouting the Adobe Creek outfall would be a very difficult undertaking. As stated in an earlier response, Permanente Creek does flow to Mountain View Slough.

Comment 15: Until these other 'remediation projects' are accomplished, I see no reason to destroy this unique riparian and wetlands habitat of the baylands Matadero Creek. The backwater caused by the constraint of the #101 underpass conduit and the overfull flood basin (in the 72 hour 1% event) will render the proposed bypass a useless, expensive, and highly destructive engineering exercise.

Response 15: The analyses, as described in detail above, indicate that the "choke point" in this system is the existing Matadero Creek channel between Highway 101 and the Palo Alto Flood Basin, not the Highway 101 undercrossing. The bypass has been proposed to provide the additional flow conveyance to this stretch of creek to "move" the peak flows on Matadero Creek to the PAFB and thus reduce backwater effects and the potential for spills or overflows to commercial and residential areas between West Bayshore Road and Ross Road.

Comment 16: Please sit down with me and the engineers who find this to be a solution and let us brainstorm other options.

Response 16: District staff and engineers from the consultant team met with you on January 17, 2002 to clarify the purpose and methods in addressing the flood control challenges for this project, and the proposed remedial plan that has been developed.

Comment 17: I still believe that upstream retention, in percolation potential lands in the foothills is the responsible option and one that District staff has not seriously investigated. Reference the State of California, Department of Water Resources, Bulletin No. 118-1, Evaluation of Ground Water Resources, SOUTH BAY, Appendix A: Geology, August 1967. Matadero Creek needs to cleanse its groundwater as well.

Response 17: Upstream retention and/or detention were seriously considered as conceptual alternatives, as documented in Chapter 5 of the Draft Engineer's Report. Screening criteria were established as part of this planning study to determine the feasibility of the conceptual alternatives. The Draft Engineer's Report details the reasons why these alternatives were not considered feasible.

Percolation of stormwater can be an effective disposal method, but flood conditions often arise when watershed soils are saturated and cannot absorb additional precipitation or runoff. Cleansing of groundwater has nothing to do with flood protection.

Comment 18: In all the above-mentioned areas I find this document is deficient as a DEIR of remediation. Afraid I have more confidence in the 1976 version.

Response 18: Each of the individual points raised in this letter is responded to separately. Many of the comments reflect a misunderstanding of existing hydrology in the area, or of the analysis. No substantive arguments are provided that the EIR has failed to accurately assess any significant environmental impacts.

Comment 19: The 1976 Engineer's Report and Final EIR on the Palo Alto Flood Basin should be referenced in some detail. There are a number of observed waterfowl and species of flora and fauna that are omitted from this present Matadero/Barron Creeks DEIR, in Appendix B for instance. The earlier 1976 report noted the rare whistling swan, clapper rail, least bittern, night hawk, rehead, little blue heron, green heron, Brandt's cormorant, Pelagic cormorant, European Widgeon, common goldeneye, red phalarope, spotted sandpiper, pectoral sandpiper, black tern and clay-colored sparrow. These were not all seen on Matadero Creek but in the adjacent basin.

Response 19: The Draft EIR/ER for this project focused specifically on the Matadero Creek channel between Alma Street and the Palo Alto Flood Basin. The biological assessment for this project was limited to the reach of creek between E.

Bayshore Road and the eastern border of the City's Municipal Services Center. Waterfowl, flora, and fauna that may be present in the PAFB may not be observed in the Matadero Creek channel near Highway 101. Proposed changes to the PAFB as part of this project are very limited in scope.

The wildlife species list in Appendix B includes all of the species that could occur in the area of potential impact from the proposed project. This area does not include the Palo Alto Flood Basin. Most of the species listed are riparian dependent species or species found along the western perimeter of the Palo Alto Flood Basin, which is where the proposed project footprint will be located (see Figure 3 in the Draft EIR). The list in Appendix B was compiled based upon existing conditions.

Comment 20: This proposed bypass will remove a third of the existing riparian corridor of Matadero Creek. Loss of habitat for the salt marsh harvest mouse is considered a take, no matter how carefully the habitat is removed by hand. This should not be permitted. No mitigation will replace the value of the wetlands and pickleweed in this baylands location. It is unnecessary and the hydrology support data is either not present in this document or is deficient.

Response 20: As explained earlier, the proposed bypass is necessary and appropriate to alleviate the flooding problems of the lower Matadero Creek reaches. The District will cooperate with the regulatory agencies and is committed to replacing the loss of habitats, with a proposal to create 2.34 acres of riparian habitat and 0.22 acres of wetland habitat. A substantial portion of this mitigation will take place at the project site, as the District has decided to include eradicating non-native vegetation along this creek corridor and replacing it with native vegetation. This effort will expand the on-site riparian mitigation by an additional 0.6 acres.

It is not correct to state that the project will remove one-third of the existing riparian corridor. As stated in the earlier response to Ellie Gioumousis, the proposed bypass channel will only remove one-fourth of the mapped riparian corridor of Matadero Creek. There is substantially more riparian habitat outside of the mapped area that will not be impacted by the proposed project.

Comment 21: The District service road has already been upgraded and trees removed from the area at the outer berm of the corporation yard. Is this permitted under present flood basin guidelines? Has this been incorporated in the tree count for the upland mitigation that is proposed beyond the raised levees on San Francisquito Creek? This is a mitigation location that can not be called in place and in kind.

Response 21: Trees removed prior to the implementation of and outside the scope of this project are not included in this analysis. The project for which impacts are determined is defined in the EIR.

Wetland mitigation of 0.22 acres is proposed on the project site. Specific mitigation measures are recommended to reduce impacts to the salt marsh harvest mouse to less than significant levels. The permitting issues associated with wetlands and riparian impacts are separate from the environmental review process defined by CEQA.

Environmental changes made many years ago have no bearing on current jurisdictional impacts or mitigation requirements. The opinion regarding the location of proposed mitigation is noted.

Comment 22: In this 1976 report there were extensive nests observed, to note: mallard, gadwall, pintail, marsh hawk, killdeer, American avocet, black necked stilt, short-eared owl, northern shoveler, and possibly ruddy duck. This was a December survey. Does the Palo Alto flood basin still support such a variety of nesting habitat? How much of the proposed bypass habitat would be termed good nesting habitat and refugia? This appears to be the most valuable and unique waterfowl baylands marsh of our region. Can this remediation project be reviewed with California Department of Fish and Game? Please include me in such discussions.

Response 22: As described in the Draft Engineer's Report and the Draft EIR, the proposed overflow bypass alignment literally "hugs" the boundary of the City's Municipal Services Center. This alignment was selected, among other reasons, to avoid impacts from project work on the greater Palo Alto Flood Basin and its marshes. Because of this, the current habitats of the PAFB are not discussed in detail in this DEIR. The proposed project has been reviewed at the site with representatives of Fish and Game on several occasions over the past two years, and timing of the bypass construction work will be coordinated carefully to comply with Fish & Game restrictions and to avoid or minimize the disturbance of nesting birds.

Please also refer to the response provided to your Comment #19.

Comment 23: No matter how 'soft' a bank treatment this bypass uses it will eliminate a third of the historic Matadero Creek riparian corridor, which is all that remains for the length of this proposed project, and including wetlands. The historic meander of the creek goes from 250 foot width at #101 to 150 feet at the north western corner of the Palo Alto Municipal Yard. The bypass, 'soft' version, cuts a 75 foot wide swath around the yard for the length of a third of a mile, a permanent loss of wetlands and riparian. This is an awful and unnecessary option. Wetlands vegetation, pickleweed, cottonwood trees and willows all will be lost.

Response 23: Please refer to the response to the comment letter written by Ellie Gioumousis (Section III-I, Comment 1)

As stated earlier, the District is committed to replacing the loss of riparian and wetland habitats. All the wetland mitigation will be performed on the project site; thus, there will be a net gain of wetlands at this location. The International School Site along San Francisquito Creek has been evaluated by biologists and deemed appropriate for mitigation of riparian habitat that cannot be performed on the project site.

Comment 24: This flood basin was established as a wetland preserve and wildlife habitat sanctuary, one of the remaining relatively undisturbed baylands wetlands. Great care was taken with selective dredging and creation of island sanctuaries. In the 1976 DEIR it noted seven major physical habitats: fresh water areas, brackish water areas, dry undisturbed areas, wet areas compacted by heavy equipment, old channels now silted up, raised road beds and soil mounds. The plants within these conditions are four vegetation types: grassland vegetation, pickleweed vegetation, freshwater vegetation and soil mound vegetation, and are carefully and scientifically noted.

In closing, might I repeat that there is a disconnect between the remediation flood project and this intrusion into the flood basin. Floodwall raising and this bypass should be a very last resort, which I find is not the case. Barometric low pressure conditions alter normal water regimen and stream flows, and raised Bay levels are very unforgiving. A better safety factor is needed in this basin.

Response 24: Chapter 5 of the Draft Engineer's Report documents the screening of conceptual alternatives to reduce backwater problems in the downstream reaches of Matadero Creek and provide one-percent flood protection to City residents along both Matadero and Barron Creeks. Chapter 6 follows with a detailed evaluation of the feasible alternatives that were identified in Chapter 5. The conclusion of that analytical process is the proposed project.

Comment 25: As Matadero and Barron Creeks pass through the Stanford Industrial park they are exposed to residual groundwater contamination from a super fund site. The beneficial instream uses of the streams has been impaired, especially, I have observed, Matadero's. It would be reassuring to have updated water quality data as to this past contamination dilution. The recreation use in Palo Alto parks would benefit from a clean bill of health for these streams.

The ducks seem to make good use of the Barron Creek sediment basin pond so it was probably just downstream that water quality problems surfaced. The super fund people haven't had meetings in over a decade but it was unclear if they had cleaned up the problem or just run out of funds. If this is not a bona fide watershed issue for you, I will understand, but it has concerned me for the creek.

The only other water quality problem upstream on Matadero was just below the Caltrans facility adjacent to #280, however didn't test below goats on Old Page Mill, or electricity facility at juncture with Old and New Page Mill Roads. Is it necessary for there to be established a baseline of water quality before the stream enters the project area? It would seem a good idea in my mind.

Response 25: The District has a water quality and sediment sampling and testing program for construction projects and routine sediment removal operations. This program includes water quality sampling and analysis, sediment sampling and analysis, sampling and analysis of stormwater discharges, and monitoring of turbidity levels as required by permit conditions by the Regional Water Quality Control Board. For Matadero Creek, recent samples show no evidence of chemical compounds associated with production facilities from the Stanford Industrial area, including the former Watkins-Johnson facility.

The District will continue its water quality monitoring program for Matadero Creek and its upper watershed.

Comment 26: The upper watershed of Matadero Creek is neglected in this EIR except for the discussion of historic flow data. I find this is a deficiency. It is important to know what land uses and what soil types are found. The two major branches of Matadero come from different communities with different land use criteria. As build out occurs, what can be expected in speed and quality of runoff?

Response 26: The upper watershed of Matadero Creek was divided into three subbasins for the hydrologic modeling effort conducted early in this project. One subbasin was dedicated to the Deer Creek catchment area, another to the Arastradero Creek catchment area, and a third for Matadero Creek prior to its confluence with Arastradero Creek. Based on field investigation and review of existing topographic and soil maps, each of these subbasins was characterized for the areal extent of woods, pastures, and residences. In these three subbasins, the residences were characterized as either 1- or 2-acre lots. Each of these land use types has a different percentage of impervious area; thus, a percent impervious value was calculated for each subbasin based on its specific distribution of land uses. Land uses are based on projected General Plan buildout.

New regulations have recently been approved by the San Francisco Bay Regional Water Quality Control Board (and other Regional Boards throughout the State) with regards to implementing Best Management Practices for stormwater quality control both during and after construction, for both new development and re-development. Individual communities will likely be including such BMP requirements through their planning and approval process. Although these requirements will probably target commercial, institutional, and large-scale residential developments at the outset, they can also be applied to construction of individual residential units. Implementing such BMPs could significantly minimize the storm water quality impacts of new residential development.

Comment 27: In the present context of the watershed management initiative one would hope that an especially careful treatment would have been undertaken of this watershed. It would also be important to know what were the historic flora and fauna and what creatures and vegetation are presently in evidence. The erosion and non-point pollution contributions of the horse and cattle grazing is a start. What are the animals per acre pastured in this watershed? What is the County plan?

Response 27: The land uses that drain to the creek system already exist and would not be changed by this project.

Comment 28: What freeboard does FEMA indicate for a flood basin?

Response 28: The FEMA freeboard requirement for the flood basin is 3.0 feet.

L. RESPONSE TO COMMENTS FROM CHUCK BRADLEY, DATED DECEMBER 03, 2001.

Comment 1: Are the proposed Matadero Creek floodwalls really necessary?

As you know, the District declared the February 1998 rainfall as the 100-year flood event that the Matadero Creek was designed for. During the heavy rainfall, the District manually controlled the gates in the Barron Park Diversion Facility-where more runoff was diverted into the Matadero Creek to avoid Barron Creek overload! At the runoff peak there was four feet of freeboard at the Waverley Street Bridge, and there was never any threat of flooding!

Therefore, without any design corrections, both creeks have withstood the one-percent flood test by adjusting the gates in the Diversion Facility. The District later declared that this manual operation was successful.

In addition, the District's other proposed remedies would reduce any flood risk even further: creating a new bypass channel downstream of Hwy. 101, and raising the Louis Road bridge and enlarging the channel underneath.

The District/ FEMA, however, has stated that it doesn't want to rely on human intervention during times of heavy rainfall. But why not? That kind of rationale would suggest that we should never rely on traffic cops, firefighters or utilities emergency crews.

If the current creek channels have proven to work, why wouldn't the District continue with same Diversion Facility procedure in the future? The millions saved from the new floodwall construction would cover the cost for emergency "rainfall" crews for the next two millenniums!

Response 1: The February 1998 storm event resulted in the highest flows recorded at the Matadero Creek gage, and was estimated to be between a 70- to 80-year event. It is true that the system was able to pass the flood of record in that event because the District was able to manage the system under emergency conditions. However, there was a direct threat of flooding in many locations, particularly to Barron Creek, because requisite freeboard was not provided. Emergency operations in 1998 were successful because of the actual pattern of rainfall. There is no guarantee that the success can be duplicated in the future.

M. RESPONSE TO COMMENTS FROM JULIE NOLAN, DATED DECEMBER 03, 2001.

Comment 1: Design mistakes made by Santa Clara Valley Water District (SCVWD) during modification of the Matadero Creek channel in the late 1980's have resulted in the need for additional channel work. The original designed called for up to 600 cubic feet per second of floodwater to be diverted to Matadero Creek from the Barron Creek drainage via two tunnels. During a 100-year flood, this diverted water from Barron Creek could make up 20% of the flow in Matadero Creek. To accommodate the 100-year flood in Matadero Creek and the additional flow diverted from Barron Creek, the Matadero Creek channel was enlarged, bridges were rebuilt and walls were added to the channel. After construction in 1989 it was found that the reconstructed channel could not carry the design discharge.

The current preferred design to increase the capacity of lower Matadero Creek and thus fix mistakes made in the late 1980's requires raising the walls on Matadero Creek from Alma Street to below Greer Road. The Louis Street bridge must also be rebuilt. At Greer Road the walls of the bridge will be raised from 3.8 to 6.7 feet! People who are driving or walking over the bridge will not be able to see the creek at all. Proposed wall height at the Louis Road Bridge is 5.1 feet, up from the present 2.9 feet. At Waverley Street the wall height would be raised to 3.7 feet from 2.2 feet. In each case, in times of flooding, water could actually be held several feet above the road surface and the level of the surrounding ground. This also means that if one of the walls should fail for any reason, water would flood neighborhoods where flood insurance will not be required. Millions and millions of dollars in damage could be the result. When officials of the SCVWD were asked (at the Nov. 20, 2001, public meeting about the project) just who would pay in case a wall failed and flooding resulted, we were told that it would be an act of God and lawyers would have to be consulted. When asked at that same meeting to consider enlarging the Matadero Creek channel by changing its present trapezoidal channel to a U-shaped channel we were told that such modification would have only limited affect. I was surprised, therefore, to find text on page 116 of the EIS stating that a U-shaped channel would eliminate the need to raise the walls at all upstream of Ross Road!

Response 1: If the existing Matadero Creek channel is modified from trapezoidal to a U-frame shape, the requirement for raising floodwalls will be eliminated for all reaches upstream of Ross Road. Downstream of Ross Road, floodwalls will still have to be raised. Since the U-frame channel modification would begin upstream of Greer Road, the water surface elevation at the bridge crossing would still be affected by the existing bridge opening, and the required height of floodwalls would be the same as for the proposed project. The benefits of the U-frame channel would be more apparent further upstream at the Louis Road Bridge, where the required floodwall heights would be reduced by approximately 0.7 foot.

The Draft Engineer's Report that is bound with the Draft EIR evaluated a number of different project alternatives to meet FEMA freeboard requirements along Matadero Creek. Modifying the creek channel from a trapezoidal shape to a U-frame shape was one potential alternative. This alternative would result in significant construction impacts, as a greater number of creek-side residents would be exposed to impacts from shoring, pile driving, and construction vehicle access, and for longer periods of time than with other alternatives. Buried underneath the District's maintenance road on the north bank are two 60kV high-voltage power transmission lines encased in steel conduits and surrounded by thermal sand backfill. This utility, maintained by the Palo Alto Light and Power Department, supplies power to many parts of Palo Alto, including the Stanford Research Park. Its presence would further complicate the channel modification process. The estimated construction costs for this undertaking is nearly one order of magnitude higher than the floodwall modification alternative.

With regards to your concerns regarding floodwall failure, the extended floodwalls will be constructed to comply with the latest Seismic Code (2000 International Building Code) and to meet the District and FEMA's levee design requirements. Compliance with seismic codes will require far more structural strength than if one was to construct a wall to withstand loads from short-term events, such as flood flows.

Finally, please refer to the responses to the comment letters from the City of Palo Alto and Mark Thomas & Co. (Section III-A, Comment 5, and Section III-G, Comment 7, respectively), which address the recent FEMA approval of risk-based analysis to determine freeboard criteria. The revised required headwall heights are presented in Table 1 of the Final EIR document.

Comment 2: The amount of money designated to raise the walls along the creek ($2.7 million, page 1-9) is equivalent to approximately the cost of three houses in Palo Alto and is far less than the potential cost from flooding if a wall should fail for any reason (earthquake, poor construction, damage by impact or other cause) during a large flood. In other words, this is the cheap alternative. Had the project been proposed from the beginning with the indicated wall heights, it would never have been approved.

Response 2: Whether the proposed project would have been approved from the beginning or not has no bearing on the environmental impacts of the proposed project. The U-frame alternative has been identified as a feasible alternative with an order-of-magnitude increase in cost over the recommended project and, as stated in Response #1, would still have significant visual and aesthetic impacts at the Greer Road Bridge. The District's Board of Directors will consider public opinion when weighing project selection.

Comment 3: To shift the burden of potential flooding and damage from Barron Creek to Matadero Creek and the residents adjacent to it is unconscionable. No structure built by humans is perfect. All such structures are subject to failure at some point in time and yet no assessment of the possible safety and financial consequences are included in the report. It is worth remembering that the designers of the Titanic thought it couldn't sink.

The only negative impact listed in the Draft EIR with regard to the raised floodwalls is considered to be a visual impact. There is no mention of the obvious negative financial impact that the significantly higher floodwalls will have on nearby properties. For example, would a potential homebuyer pay the same amount for otherwise identical properties if one of them is adjacent to a 6.7-foot high concrete wall enclosing flood water at a higher level than the ground floor of the house? The draft EIR is clearly inadequate because it does not consider this impact.

Response 3: Addressing the financial impacts associated with a proposed project is beyond the scope of an EIR. According to District staff, the financial impact of raised floodwalls on nearby properties is not obvious. In no instance will a floodwall be taller than a six-foot high privacy fence, and the walls provide a benefit in terms of reduced flood risk that could have a positive impact to property value. Isolating the financial impact of floodwall construction relative to property value in a meaningful way would be impossible. Addressing the financial impacts associated with a proposed project is beyond the scope of the California Environmental Quality Act.

Comment 4: The mistake in the initial design coupled with evasive statements made by SCVWD personnel at the public meeting on Nov. 20 leave me with no confidence that the Water District has chosen the best alternative to fix its error. The current preferred alternative will only be cheapest for the Water District. Palo Alto residents who live near Matadero Creek, and who must bear the flood protection burden for BOTH Matadero and Barron Creeks, will find that this cheapest alternative is really the most expensive. The Water District plan would place a direct financial burden on homeowners who live near Matadero Creek by reducing the value of their homes as a result of the significant increase in the heights of floodwalls.

I note here that my husband's written comment prior to the channel modification in the 1980's urged SCVWD to be sure of their hydraulic and hydrologic calculations because of the burden placed on lower portions of Matadero Creek. Apparently his comments were not heard. Now SCVWD will "remediate" its mistake. I am concerned that my comments will also be ignored with potential financial and flooding consequences for residents adjacent to Matadero Creek.

As written, the Draft EIR contains two fatal flaws:

1) **The failure to evaluate impacts of a possible break in a raised floodwall, and**

2) **The failure to assess the negative financial impact of the walls on nearby property owners.**

The draft document is clearly inadequate and approval of it must be deferred until the impacts on property values and the safety consequences are properly assessed, included in the EIR, and widely disseminated for public comment.

SCVWD clearly needs to find an alternative that has fewer negative consequences for homeowners near Matadero Creek. Failure to do so could leave the Water District open to lawsuits as property owners sue to obtain financial remuneration for the lost value to their homes.

Response 4: Floodwalls are designed to contain water without cracking or failing during a coincident seismic event, in accordance with the Uniform Building Code.

CEQA does not require that an EIR evaluate unlikely or hypothetical scenarios. Similarly, there is no requirement under CEQA for discussion of financial impacts, particularly related to issues such as perceived loss of property value. CEQA requires that an EIR address the impacts of a proposed project on the physical environment. The District may take financial issues into account in considering the project itself, and has hired a real estate consultant to assess the property value issue along Matadero Creek, but such issues must be dealt with in a context separate from the EIR.

N. RESPONSE TO COMMENTS FROM BRIAN REED, DATED DECEMBER 04, 2001.

Comment 1: My house at 2960 Waverley St has never been in a flood zone. It has been on high ground next to Matadero Creek for 77 years. Over time, the creek has become a canal, and then had the canal walls enlarged.

The proposed flood remediation plan will dramatically damage the quality of my home in order to increase the quality of somebody else's home. In order to give homeowners in another neighborhood the ability to spend less money on flood insurance, my house will be turned into a basement grotto by erecting high concrete walls to block my view. If these walls are erected, the quality of my life will be reduced and the value of my property will be reduced. This is a major impact on the environment, my own environment, the one I live in and it is not addressed in the EIR.

It is absolutely wrong for government to damage one home in order to reduce the operating expense of another. I would prefer that these walls not be built, but, if they are built, I would expect to be reimbursed for the amount of money by which the value of my home is reduced, and for the flood insurance that I will need to buy to protect myself against failure of these walls.

Response 1: Photo 1 on the following page provides a view of the existing chain link fence and shrubbery adjacent to the bridge headwall at 2960 Waverley Street. With the proposed project, a concrete wall will replace the chain link fence, and its height will coincide with the increased wall height across the bridge (Photo 2). Over the long-term, the view will not be altered significantly if the ivy/morning glory plantings are restored, as shown in Photo 3, and you will not be required to purchase flood insurance for your residence.

O. RESPONSE TO COMMENTS FROM EMILY RENZEL, DATED DECEMBER 04, 2001.

I am writing to comment on the EIR for the Matadero/Barron Creeks Long Term Remediation Project. I regret that I was unable to attend the meeting you held a couple of weeks ago at the Acterra offices, but thank you for inviting me to it.

Comment 1: I remain concerned about the work proposed downstream of Highway 101. The 80' wide hard bottom bypass channel will necessitate removal of a huge amount of both native and non-native riparian habitat. The bypass is supposed to accommodate 1400 cfs of flow during the 100-year event, but if the flood basin is at or near capacity, the bypass will essentially be storage only.

Photo 1: Existing view of sidewalk and headwall on upstream side of Waverley Street Bridge at the 2960 Waverley Street property. The ivy is growing on a chain link fence that runs along the creek bank. The top of the floodwall at the base of the fence is less than 1 foot above the ground elevation at this location.

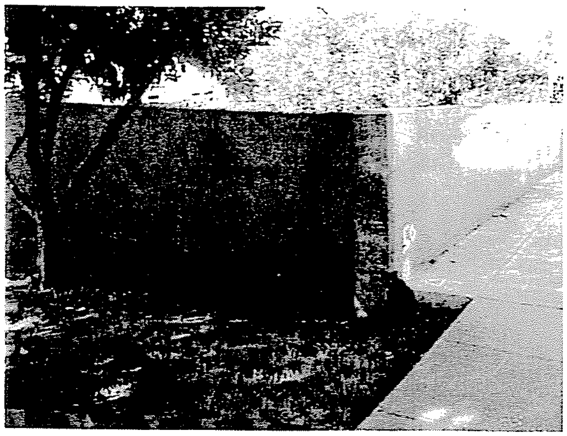

Photo 2: With the proposed project, the bridge headwall will be raised as shown, and the chain link fence along the edge of property will be replaced with a wall to match the bridge headwall.

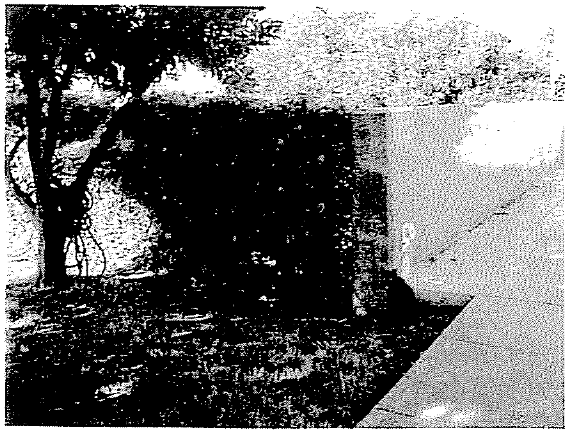

Photo 3: If the existing plantings along the chain link fence are restored, the raised wall along the property boundary will look very similar to the existing condition as seen in Photo 1.

Response 1: The proposed 60-foot wide bypass is considered essential for flood flow conveyance. Please see the response to the comment letter from Libby Lucas (Section III-K, Comment 5).

Comment 2: The current riparian lowlands between the Palo Alto Municipal Services Center and Matadero Creek channel proper can also provide overflow storage while continuing to provide great refugia for many species of birds. Since there are significant lowlands all around the flood basin, including the Renzel wetlands, the old Mayfield Slough remnant, and others, perhaps there is a simpler solution which might entail large high elevation flow-through culverts to allow storage in those areas until the flood basin is able to discharge.

Response 2: In Chapter 5 of the Draft Engineer's Report, an alternative for providing storage relief downstream of Highway 101 during high-flow periods was evaluated. As discussed on Pages 5-13 through 5-17, a high-elevation spillway through the levee between Matadero Creek and Renzel Marsh was suggested as a means to provide such storage. Approximately 850 acre-feet of stormwater runoff would spill into Renzel Marsh to provide the necessary relief to the existing Matadero Creek channel. This would inundate the marsh and would flood the commercial offices along Embarcadero Road, unless containment levees were built to ring the marsh and protect these areas. The environmental and ecological impacts of such a project would be very extensive, and the project costs were estimated to be $47 million.

Comment 3: The Matadero Creek riparian area is particularly important because the rest of the baylands are basically saltmarsh or fresh marsh. If there are major losses of riparian habitat in this location, we could see significant losses of species diversity. I stepped off what I thought was 80' from the Municipal Services Center (MSC) fence toward Matadero Creek, and only 50-60' feet of the original riparian corridor between the creek and the MSC would remain. If, as part of this project, non-native species located in the immediate vicinity of the creek are also to be removed, this could be devastating in the short term and potentially have long term impacts on some species. Use of herbicides as described in the EIR may have harmful effects on native plant species and residue might also impact wildlife. Manual removal should be required if there is to be plant removal. In any case, that plant removal should not take place until revegetation has occurred in areas designated for mitigation.

Response 3: The flood bypass channel was originally proposed to circumvent the need to dredge and/or widen (i.e., negatively impact) the channel and its adjacent corridor downstream of Highway 101. This also removes the need to implement an ongoing program of maintenance dredging and/or widening.

Based upon the current design the riparian corridor would vary between 50 and 100 feet in width. At this stage in the planning, non-native species removal is constrained to herbaceous species only, but the method of removal has not been decided. Any removal of non-native vegetation and replanting with native species will follow an eradication/revegetation plan approved by the regulatory agencies as part of the permitting process.

Comment 4: I attempted to find in the EIR an aerial photo of the entire site downstream of 101, so that the impacts could be really assessed, but so far I have not found anything but drawings. In the meeting a couple of years ago, there was talk of building a major 15'access road for maintenance. I could not find reference to it or any depiction of it in this EIR. I hope that means that said road has been deleted from the project. I believe it will have major adverse impact by providing dry access for red fox and other predators and by its direct impact on the wetlands through which it would have to run.

Response 4: As shown in Figures 6-5 and 7-2 in the Engineer's Report, an access ramp will be constructed along the existing levee that borders the MSC and the Animal Services facility along the southeast and southern boundary with the PAFB. This ramp will connect to the overflow bypass. Predators already have dry access to the riparian areas around Matadero Creek due to the presence of this existing levee, part of which will be removed and replaced with the proposed overflow bypass.

Comment 5: I know that in dealing with FEMA rules, some rules which govern the rest of the country may apply here, even though our weather conditions are quite different. While you have to acknowledge these rules and attempt to deal with them in order to remove large areas from the flood maps, I hope you will make every attempt to persuade FEMA that some projects may just be boondoggles here in California. This Matadero bypass may be one of them. Please be sure that it is a realistic project for a realistic problem before tearing apart perhaps the largest riparian habitat downstream of Highway 101.

Response 5: FEMA criteria are national in scope and do not make allowances for various factors that differ widely across the country. As documented in the DEIR/ER, the downstream bypass is necessary to provide one-percent flood protection in Palo Alto without excessive raising of existing floodwalls. Table 5-3 on page 5-23 of the Draft Engineer's Report defines the required floodwall heights if no bypass is constructed downstream of Highway 101.

Please also refer to the responses to the comment letters from the City of Palo Alto and Mark Thomas & Co. (Section III-A, Comment 5, and Section III-G, Comment 7, respectively), which address the recent FEMA approval of risk-based analysis to determine freeboard criteria. The revised required headwall heights with an overflow bypass in place, are presented in Table 1 of the Final EIR document.

P. RESPONSE TO COMMENTS FROM MIDTOWN RESIDENTS ASSOCIATION, DATED MAY 22, 2002

Comment 1: A Brief History
The projects completed in 1997 were intended to provide 100-year flood protection to all properties influenced by riverine flooding along Matadero and Barron Creeks.
However, due to numerous errors in the hydraulic analyses, the completed project provided increased flood protection, but did not meet current FEMA or District freeboard standards.

The primary objective of the current remediation project is to provide a level of flood protection along Matadero and Barron Creeks that meets District and FEMA standards. Each creek must convey the one- percent discharge with adequate freeboard.

The proposed project is preferred because it provides one-percent flood protection for the least overall capital cost and environmental impact.

An additional project objective is to obtain a letter of map revision from FEMA to remove a substantial number of properties upstream of Alma Street / Central Expressway from the Special Flood Hazard Areas that are shown on the Flood Insurance Rate Maps. [Downstream properties still must carry flood insurance because of continuing threats of flooding from both the Bay and San Francisquito Creek.]

Response 1: The District agrees with the summary of project as stated, with the exception of the statement that the proposed project provides one-percent flood protection for the least environmental impact. As presented in the Draft EIR, the preferred alternative does not have the least overall environmental impact, but all impacts will be mitigated. The proposed project is preferred because of capital costs as well as long-term maintenance feasibility issues.

Comment 2: Our Feelings on This Issue

The Santa Clara Valley Water District made the mistakes—big ones.

The result of these mistakes is INCREASED risk of flooding in the Midtown neighborhood.

The diversion of Barron Creek and improvements to the channels and bridges upstream have so increased the flow rate and discharge into Matadero Creek that it currently does not have adequate capacity to both convey the 100-year flood and meet the freeboard requirements.

Our homes and streets were torn up and people were inconvenienced with the promise that EVERYONE along both Barron and Matadero Creeks would have flood protection.

The District (with the City's allowance, apparently) violated Sections 16.52.030(a) and (e) of the Palo Alto Municipal Code. The Code regulates flood hazards by:

(a) Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which *result in damaging increases in* erosion or in *flood heights or velocities*.

(e) Preventing or *regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas*.

Now we in Midtown are the ones who must suffer the consequences of these errors.

The price to us is visual blight, safety hazards, and a reduction in property values, not to mention more construction, road closures and inconvenience.

The proposed project as it stands is not acceptable to us nor should it be to the City of Palo Alto.

So that's why we're here—to work out a better solution.

Response 2: The concerns expressed in Comment 2 are acknowledged. However, some additional response and clarification are provided as follows:

The Matadero Creek improvements that were completed in 1997 did not increase the risk of flooding to the Midtown neighborhood. Rather, the replacement of bridges and raising of floodwalls provided adequate capacity to convey the one-percent flood flows, but not the necessary freeboard to comply with FEMA criteria.

The 1997 flood control project was implemented with approval from the City of Palo Alto. The District firmly believes that the 1997 project did not violate any part of the Palo Alto Municipal Code.

This project, as proposed, will alleviate the problems caused by earlier project work (i.e. inadequate freeboard per FEMA standards). Inconvenience to the neighborhood will be temporary. The originally proposed floodwall heights will be reduced because FEMA has recently approved the use of risk-based criteria for freeboard requirements; therefore impacts of visual blight and safety hazards will be significantly reduced.

Comment 3: **What We Want**
While we believe that the best solution by far is to do *nothing* until there is money available to do the right thing, we also recognize there are promises to be kept.
Promises made by the District to Barron Park, and to those who were told they'd be relieved of flood insurance requirements.
But these promises should not be fulfilled solely at the expense of those on lower Matadero.

Response 3: The District recognizes the association's concerns with regards to the proposed project.

Comment 4: **The Alternatives**
One of our major objections to the proposed project is that because the work already done has so increased both the amount of water and the flow rate of Matadero, virtually all of the alternatives still require walls from 5-7 feet high downstream of Louis, even with the Downstream Bypass able to convey half of the 1% flow!

Response 4: As presented in Response to Comment 2, the required floodwall heights, as described in the Draft EIR, have now been reduced because FEMA has recently approved the use of risk-based criteria for freeboard requirements. At Greer Road, the required height of the headwall on the downstream bridge face has been reduced from 5.7 ft to 3.8 feet above the sidewalk. On the upstream face of Greer Road bridge, the required height of the headwall has been reduced from 6.7 feet to 5.0 feet above the sidewalk. Between Greer Road and Louis Road, the floodwall heights along the creek channel are presently 2 to 3 feet above the adjacent ground elevation. Using risk-based criteria for freeboard requirements, these walls will only have to be raised by up to 1 foot. At Louis Road, the required height of the headwall on the downstream face has been reduced from 3.9 to 2.2 feet above the sidewalk. On the upstream face of Louis Road bridge, the required height of the headwall has been reduced from 4.8 to 4.3 feet above the sidewalk.

Comment 5: We still believe it makes no sense to solve the problem solely at the creek's terminus; you *must* look at retaining or at least slowing some of the flow upstream. Otherwise, we'll be revisiting this same issue in another 15 years. In addition, we really don't know the impact of future projects–San Francisquito Creek will need to be brought up to

FEMA requirements, the storm drains will be improved and made more efficient, and there is talk of a "southern connection" from the Dumbarton to 101 under, if not through, the Baylands.

Response 5: As explained in the Draft Engineer's Report, which was bound with the Draft EIR, the watershed analysis conducted for this study accounted for buildout based on City land use plans to the year 2020. CEQA does not allow speculation with regards to future projects; therefore, it is not feasible to determine future projects, or their possible impacts, beyond what is set forth in the current General Plans.

Comment 6: That said, we looked at the alternatives and combinations thereof both with and without regard to cost. As we have previously said, we want the correct—not the cheapest—solution for the long-term.
Our analysis assumes that the Downstream Bypass next to the Municipal Services Center is a must-do.
Of the alternatives presented to us (see detailed analysis on following pages), our preferences in order are:

➢ Underground Bypass Between Alma and the Flood Basin
We believe the Underground Bypass (a box culvert to convey flows underground via Loma Verde), although temporarily disruptive, provides the best long-term flood protection to all neighborhoods while still retaining our quality of life. Ideally, it would be combined with the City of Palo Alto's storm drain upgrade to ensure streets would be torn up only once.

Response 6: The Loma Verde bypass was not considered beyond the conceptual alternatives analysis for the following reasons:

- Estimated construction costs are $75 million;
- Construction estimated to take up to three years;
- Relocation of numerous utilities would be very expensive and very disruptive to residents;
- A siphon would have to be constructed under Highway 101
- Ongoing maintenance of such a box culvert would be difficult and expensive;

Comment 7:

➢ Upstream Retention Basin
A 600 acre-foot reservoir on Matadero Creek between 1-280 and Foothill Expressway would negate the need for any raised floodwalls.
A 130 acre-foot detention basin on a 20-acre site near Page Mill and Foothill Expressway would reduce the 1% discharge in Matadero Creek by 600 cfs, allowing full diversion from Barron Creek and lowering floodwall requirements.

Response 7: A 600-acre-foot reservoir on Matadero Creek between I-280 and Foothill Expressway was evaluated at a conceptual level in the Draft Engineer's

Report, and was determined to be an infeasible option. It would have required relocation of the I-280/Page Mill Road interchange, the relocation of Page Mill Road and Old Page Mill Road, and would result in significant environmental impacts, both within the footprint of this reservoir and the natural stream environment between the reservoir and El Camino Real. Its estimated cost was $80 million.

The 130 acre-foot detention basin on Stanford lands would have reduced the required raising of headwalls at Greer and Louis Road bridges by 1.0 to 1.5 feet. This alternative would have eliminated any floodwall improvements upstream of Ross Road.

This off-stream storage alternative was proposed to Stanford early in the project planning process. Stanford officials are unwilling to lease the land in question as they have alternate plans for the parcel.

Comment 8:

- Matadero Channel (Full U-Frame) Enlargement
  No headwall or floodwall modifications would be needed upstream of Ross Road. This alternative also reduces flood and headwall heights on Louis (and possibly Greer with additional mitigation) to an acceptable level.

Response 8: Please refer to the response to the comment letter from Julie Nolan (Section III-M, Comment 1.

Comment 9:

- Remove Greer Road Bridge (while still raising and replacing the Louis Road Bridge)
  Either eliminates or reduces the need for raising flood and headwalls because the Greer Bridge would no longer act as a dam.

Response 9: Removal of the Greer Road Bridge, the Louis Road Bridge, or both bridges, was evaluated early in the project planning study. At the time, the City of Palo Alto was contacted with regards to these options and responded that any of these measures would result in significant traffic circulation and social impacts to the surrounding neighborhoods. City of Palo Alto staff were not interested in pursuing these options further.

Comment 10:

- Seasonal Barriers

  One advantage of using removable barriers is that it gives everyone time to see what will happen over the next few years without erecting anything permanent that can't be undone should a better solution come along.

  Ideally, floodwalls would be put into place from late November to mid-March and headwalls placed only during an emergency.

  Yet another option is to raise only the floodwalls and do nothing to the headwalls. Instead, during a critical period, sandbag (or place temporary barriers) across the street from one floodwall to the other.

Response 10: Temporary, or seasonal flood control barriers are certainly a viable option to mitigate the visual impacts of higher headwalls at bridge crossings. Temporary flood control barriers have been used successfully in many parts of the Midwest and are relatively inexpensive and easy to install and maintain. In the Midwest, flood warnings are sometimes issued days in advance due to the hydrologic characteristics of watersheds in that part of the country. Such advance notice allows communities to install the temporary flood control barriers in anticipation of high-flow events. In the case of Matadero Creek, flood control barriers would have to be in place between mid-October and early May to encompass the season of potentially large storm events. Due to the size and hydrologic response of this watershed to rainfall events, there would not be ample time to install these barriers in an "emergency" situation. However, during the remaining months of the year, the existing concrete headwalls on bridge crossings would allow for visual access and enjoyment of the creek corridor as exists at the present time.

District staff has proposed using temporary flood barriers along the maintenance access ramps at both the Louis and Greer Road bridge crossings. This will eliminate the necessity of raising the elevation of the existing access ramps to match the height of the required headwall at both bridges. Along the remainder of the bridge crossing, the sidewalks will be reconfigured to provide similar views of the creek as exist today. Also, decorative architectural elements will be incorporated into the headwalls to reduce the visual/aesthetic impacts to less than significant.

Comment 11: Results of SCVWD Requesting a Conditional Letter of Map Revision (CLOMR)

As part of the process of obtaining a Conditional Letter of Map Revision (CLOMR) from FEMA, the District has conducted a risk-based analysis to determine the site-specific freeboard necessary to pass the one percent flood discharge. Based on these results, the District may prepare a request to FEMA to relax the freeboard criteria, and thus lower the required floodwall heights.

According to Liang Lee, the FEMA technical consultant has approved the District's risk based analysis and it was now up to FEMA to approve the application. "Should this happen, it would set a precedence for non-federal projects getting approval of this type of approach to flood control. We should hear from FEMA again in a month or so.

As was described in Appendix I of the DEIR, regulations published in NFIP 65 indicate that FEMA will consider freeboard reductions of up to two feet based partly on such statistical analysis. In our case, the reduction is in most cases about 1 ft."

Response 11: Your comments pertaining to the SCVWD request for a Conditional Letter of Map Revision are correct.

Comment 12: Underground Bypass Between Alma and the Flood Basin

	SCVWD Analysis	MRA Response
Pro	No channel modifications required to either Matadero or Barron Creeks.	The best solution.
	The biological/wildlife environmental impacts would be minimal and could be mitigated.	
Con	36 months of construction impacts (traffic circulation, limited street access by residents, noise and dust).	Current project will be 2 years of these same impacts.
	Relocation of numerous utilities (water, sewer, storm, gas). Some may not be possible due to right of way limitations. Maintaining connectivity with utilities on cross streets and need for gravity flow or pumping for storm drain and sewer lines will increase cost.	
	Ongoing maintenance of this box culvert would require removal of sediment on a regular basis to maintain the hydraulic capacity. Difficult and expensive to perform.	What is done with storm drains in that area? Don't they have the same problem?
	A siphon will be constructed at Hwy 101. Will not drain by gravity. Need a pump station. Has safety and reliability concerns.	Need a pump station anyway for storm drains
	Construction cost estimated at $75 million.	

Response 12: While the proposed project will take approximately 2 years to complete, the intensity of the project work in any given area will be significantly less than the complete disruption of neighborhood streets necessary to install a box culvert.

Local storm drains are installed at slopes to minimize buildup of sediments and debris. The Loma Verde bypass would have to be set at a much flatter slope due to its length and the elevation constraints set by the Palo Alto Flood Basin levels on the downstream side of Highway 101.

Comment 13: Upstream Retention Basin

	SCVWD Analysis	MRA Response
Pro	Reduces the required height of floodwalls and headwalls at upstream side of Greer Bridge from 6.6 to 5.5 ft, and downstream from 5.7 to 5:0 ft. Reduces the wall height at upstream side of Louis Bridge from 4.8 to 3.2 ft, and downstream from 3.9 to 2.8 ft.	Reduction by 1 foot combined with another alternative is significant at Greer. Reduction alone is enough at Louis. If this option allows full diversion from Barron Creek (600 cfs), and the pro argument for continuing the Emergency Operating Plan is that a reduction of 600 cfs alleviates the need for raising walls, why wouldn't that also be true here?
Con	City of Palo Alto Municipal Services Center is susceptible to creek overflows. East and West Bayshore and Highway 101 are susceptible to flooding.	We agreed the Downstream Bypass was a must do. That should eliminate this concern.
	Potential impact to endangered species habitat.	
	Cost estimated at approximately $40 million.	Doesn't Stanford share cost?
	Per Christofferson Stanford not interested in plan.	See Stanford's GUP.

Response 13: Please refer to the Response to Comment 7 in this section.

Comment 14: Matadero Channel (Full U-Frame) Enlargement

	SCVWD Analysis	MRA Response
Pro	No headwall or floodwall modifications needed upstream of Ross Road	Good for upstream residents.
	The upstream headwall at Louis Road can be decreased from 4.8 feet to 4.1 feet and the downstream headwall can be decreased from 3.9 feet to 3.2 feet.	Also good.
Con	Required headwall heights at Greer Road (5.7 feet at downstream face and 6.6 feet at upstream face) do not change.	Why?
	A far greater number of creekside residents (from Greer Road to Alma Street) will be exposed to construction impacts due to shoring, pile driving, temporary groundwater dewatering, construction vehicle access, and for longer periods of time.	
	Conducting channel modifications within a few feet of the 60KV transmission line buried in the northern bank is very risky.	But can and will be done when replacing Louis Bridge.
Cost	Construction costs rises to $30 million due to extensive and risky shoring, pile driving, and dewatering.	

Response 14: If the Matadero Creek channel is modified to a U-frame, this work will be limited to the reach from Greer Road upstream to Alma Street. The section of creek downstream of Greer Road has an earthen bottom, and it would be difficult and costly to obtain permits and mitigate for concrete-lining this reach to create a U-frame channel. If the flow capacity of this reach is not improved, the hydraulics in this reach will govern the backwater impacts at

Greer Road bridge; thus the required headwall heights on Greer Road bridge would not change, even if the entire channel upstream is converted to U-frame.

With regards to the 60kV transmission line, the Louis Road Bridge replacement and channel modifications will require some work in the vicinity of this line. However, a limited area will be affected by this work. Undertaking the conversion to a U-frame channel will require work near the 60kV line for thousands of lineal feet, thus increasing the risk of damage or catastrophic failure dramatically.

Comment 15. Remove Greer Road Bridge (while still raising and replacing the Louis Road Bridge)

	SCVWD Analysis	MRA Response
Pro	Reduces the required height of floodwalls and headwalls at upstream side of Greer Bridge from 6.6 to 5.5 ft, and downstream from 5.7 to 5:0 ft. Reduces the wall height at upstream side of Louis Badge from 4.8 to 3.2 ft, and downstream from 3.9 to 2.8 ft.	Reduction by 1 foot combined with another alternative is significant at Greer. Reduction alone is enough at Louis. If this option allows full diversion from Barron Creek (600 cfs), and the pro argument for continuing the Emergency Operating Plan is that a reduction of 600 cfs alleviates the need for raising walls, why wouldn't that also be true here?
	Inexpensive from a monetary perspective. Bridge removal cost at Greer Road is $30,000. Building_a_pedestrian_bridge will cost $300,000.	Total $330,000
Con	City of Palo Alto noted: Greer carries 2000 vehicles per day. Closing will shift traffic to W. Bayshore and Louis and inconvenience residents, pedestrians and bicyclists on those streets and compromise emergency response.	Greer carries a lot of that traffic because people don't want to use West Bayshore. Given where the ER teams are located (and experience as a 25-year resident), there is almost no compromise to emergency response. Greer is not supposed to be an alternative to West Bayshore or 101. People using it as such will not go all the way to Louis. Besides, you have no problem routing people onto Greer from Louis for 2 seasons while that bridge is being replaced.
	Potential aesthetic impact by constructing a floodwall across the approaches of the bridge.	Do you mean across Greer? How high a wall? Are floodwall heights east of Louis reduced? Why wouldn't it be constructed like Bryant?

Response 15: This alternative was evaluated early on in the project. City officials were not in favor of such a solution due to significant traffic impacts in this area of Palo Alto. Rerouting of traffic during the Louis Road bridge replacement will be a temporary impact and limited to approximately 6 months.

Comment 16: Seasonal Barriers

There are several options, such as:

Permanent floodwalls	*Removable floodwalls*	*Removable headwalls*
Alma to Louis	Louis to 101	Louis, Greer, possibly Waverley
Alma to Greer	Greer to 101	Louis, Greer, possibly Waverley
Alma to 101	--	Louis, Greer

	SCVWD Analysis	MRA Response
Pro	When the barriers are not in use, the creek view corridor can be maintained. The barriers are relatively easy to install and remove. The barriers can vary in length. The barriers are typically 20 foot in length and 90 pounds each. The barriers are interchangeable units.	All good things.
Con	Requires Maintenance Staff to install and remove the barriers.	How much time? Once in November, again in March.
	Requires storage area or warehouse when the barriers are not in use.	Palo Alto (Public Works or Utilities) is already using a portion of Greer Park. Plenty of room; it's as close to relevant portion of Matadero as you can get. Also close by are the MSC and the power station.
	Additional permanent access to the floodwalls will be required where there is no maintenance road for installation of the barriers.	Which is where? The primary areas where they'd be used already have access roads. See Note 1, from info in the DEIR.
	The barriers are painted but typically, artwork is not applied to the barriers.	Not an issue.
	FEMA may not accept design and remove properties from floodplain.	FEMA won't remove properties in any case east of Ross.
	Scissors lifts/boom trucks may be needed to place the barriers on top of the walls.	Doesn't CPA have any? Certainly had them to lift debris from the creek in 1998.
Cost	For Matadero Creek, the use of the barriers will run $300-$400/linear foot.	Cost is the same as for permanent walls; probably only need to do the section between Louis and 101.
	Projected cost of removable bridge headwalls: Greer $42,000, Louis $32,000	
Note	Initial response from FEMA not promising. Will investigate and follow up with FEMA to verify acceptability. Contacted the users ... Cedar Falls and Corps of Engineers confirmed FEMA acceptance, contrary to feedback from FEMA. Will finalize District position following further clarification with FEMA and COE.	

Note 1: Permanent flood control structures will also be constructed on the maintenance ramps at Highway 101 and Louis Road. The flood control walls consist of galvanized steel sill plates and end plates embedded in the concrete floodwall with sealed aluminum planks that can be removed only by District personnel when they need access to the channel during summer maintenance activities. The sealed walls will be left in place at all other times.

Response 16: The MRA responses to pros and cons are duly noted. The District has done additional investigation and research into the use of temporary barriers, particularly at the Greer Road and Louis Road bridge crossings. These barriers provide a viable option for minimizing long-term visual impacts. Please see the response to Comment 10 of this section for further elaboration.

Comment 17: Continue Emergency Operating Plan

While we recognize that this option is unacceptable to the Barron Park neighborhood, we are including it because of questions about the District's analysis.

	SCVWD Analysis	MRA Response
Pro	No modification to headwalls or floodwalls along Matadero Creek.	So all this comes down to 600 cfs?
Con	City of Palo Alto Municipal Services Center is susceptible to creek overflows. East and West Bayshore and Highway 101 are susceptible to flooding	We agreed the Downstream Bypass was a must do. That should alleviate this concern.
	Matadero Creek does not have sufficient freeboard during one-percent event.	But it does have capacity per the DEIR. Also, how can this be true if the Pro argument is that no modification to floodwalls or headwalls is necessary?
	Doesn't remove properties from the FEMA flood plain. Residents continue to pay flood insurance, and be subject to special floodplain management building restrictions.	This is true for all alternatives for properties east of Ross Road. The only properties that would be removed are in Barron Park, along Park Avenue and in the Waverley area.
Cost	Operation & Maintenance costs of minimum $50,000 per year.	$50,000 only if the 1% event threatens, not yearly. Any other O&M costs are required anyway.
	Potentially significant liability exposure.	But you're not worried about liability if higher walls fail along the creek from Louis to 101?

Response 17: Continuing with the Emergency Operating Plan is the "No Project" alternative for this Planning Study. By definition, a "No Project" alternative means that current operations will continue and that nothing will be done to change existing conditions. The existing floodwalls would not be raised, no overflow bypass would be constructed downstream of Highway 101, and the District would continue to manually staff and operate the Barron Diversion during high-flow events to balance flood protection between Matadero and Barron Creeks. Since many Palo Alto residents have expressed significant concerns and voiced strong resistance to the District's proposal to raise floodwalls, the fact that nothing would be done to the existing floodwalls is listed here as a "pro" statement. It is not meant to imply that this alternative would remove the necessity to raise floodwalls. Matadero Creek would have the "capacity" to convey the one-percent flood, but not the freeboard to meet FEMA requirements.

Please refer to Figure 7-8 in the Engineer's Report for this project, which depicts the rather extensive area between Matadero and Barron Creeks that will be removed from the one percent flood hazard if this remediation project is completed.

Neither the Engineer's Report (ER) nor the Environmental Impact Report (EIR) provides any Operations & Maintenance (O&M) cost estimates for the

"No Project Alternative", described in Chapter 5 of the ER. The District's planning study approach first identifies conceptual alternatives and screens them using fundamental criteria such as one-percent flood protection, potential environmental impacts, and reasonable project costs. Alternatives that make the cut after this evaluation become "feasible" alternatives, and these are evaluated in greater detail, as described in Chapter 6 of the ER. It is at this level that O&M costs are developed for various alternatives. The "No Project" alternative did not make the cut to be considered a feasible alternative; it is not clear where you obtained the O&M cost of $50,000, but it is an inaccurate figure.

The District designs and constructs floodwalls in compliance with standard building codes so that they withstand water pressures from higher flows. Please also refer to the second portion of the response to Comment 1 from Julie Nolan (Section III-M).

Comment 18: Cost Analysis of Possible Combinations of Alternatives

The estimated total first cost of the proposed remediation project for Matadero and Barron Creeks is $14,000,000 and includes costs for design engineering construction, inspection, administration, and mitigation (according to the DEIR).

Combination 1	Combination 2	Combination 3	Combination 4
Downstream Bypass 8,000,000	Downstream Bypass 8,000,000	Downstream Bypass 8,000,000	Downstream Bypass 8,000,000
Raise Louis bridge 925,000	Raise Louis bridge 925,000	Raise Louis bridge 925,000	Raise Louis bridge 925,000
Retention Basin 40,000,000	Remove Greer bridge 30,000	U-Frame Channel 30,000,000	Removable floodwalls 101 to Louis 4600 feet @ $350/ft 1,600,000
	Greer pedestrian bridge 300,000	Removable headwalls on Greer 42,000	Removable headwalls Louis 32,000; Greer 42,000
			Raise floodwalls Louis to Alma 2,700,000
49,000,000	9,300,00	39,000,000	13,300,000
Advantages: Retention basin alone reduces required wall heights on Louis to an acceptable level. Retention basin + raising Louis bridge reduces required wall heights on Greer to an acceptable level.	Advantages: Reduces required wall heights on Louis to an acceptable level. Relieves potential backwash problems at Greer bridge. Acts as traffic calming on Greer.	Advantages: No headwall or floodwall modifications needed upstream of Ross Road. Reduces required wall heights on Louis to an acceptable level. Seasonal barrier needed only at Greer.	Advantages: Satisfies freeboard requirements. When the barriers are not in use, the creek view corridor can be maintained. Combines permanent and removable flood and head walls.

Response 18: The costs presented in this table are reasonable, and agree with costs presented in the Draft EIR and Draft Engineer's Report.

PUBLIC HEARING

Q. RESPONSE TO COMMENTS, PUBLIC HEARING, DATED NOVEMBER 20, 2001.

The following section summarizes comments that were made at the hearing held at Cubberly Center and responses to those comments.

Brian Reed

Comment 1: Mr. Brian Reid, 2960 Waverley St., stated his support for the overall project, but his opposition to the construction of concrete floodwalls at the Waverley Street bridge. He expressed concern that the proposed floodwalls would be esthetically unappealing, and that their installation would adversely impact the value his home.

Response 1: The aesthetic impact of the floodwalls is addressed in the Draft EIR, beginning on page 94. Please refer also to responses to the comment letter written by Mr. Reed, Section III-N of this FEIR.

Chuck Bradley

Comment 2: Mr. Chuck Bradley, 2957 Waverley St., questioned the necessity of raising the floodwalls at the Waverley Street bridge. He stated that in his 33 years of property ownership he had witnessed several large storms, none of which exceeded the existing floodwalls. He expressed his opposition to the unfavorable aesthetic impact that raising the floodwalls would have on adjacent properties, and suggested that the District utilize construction funds to pay homeowner's flood insurance premiums instead.

Response 2: The aesthetic impact of the floodwalls is addressed in the DEIR, beginning on page 94. Please refer also to responses to the comment letter written by Mr. Bradley, Section III-L of this FEIR. The District has no policy in place to pay for homeowners' flood insurance premiums in any of the watersheds in its jurisdiction.

John Abraham

Comment 3: Mr. John K. Abraham, 736 Ellsworth Place, stated his agreement with Mr. Bradley's comments; cited that the existing floodwalls and bridges successfully withstood a 130 year flood event in November 1998; and questioned whether the objective was flood protection or relief for homeowners from flood insurance.

He expressed concern with anticipated construction noise; suggested a 9:00 a.m. start time with limited construction on weekends; and requested that the Board be proactive in working with the City.

Response 3: Construction will be in accordance with City noise ordinances. After award of contract, neighborhood meetings will be held with District staff, the contractor, and project neighbors. The public will be given names and telephone numbers for reporting construction and traffic flow issues. In addition, a trailer would be stationed at the construction site and neighbors could report concerns directly to District staff at the trailer during its hours of operation.

As stated in the Draft EIR (page *i* in the Summary Section), the multiple objectives of this project include both providing one-percent flood protection and obtaining a letter of map revision to remove existing areas prone to riverine flooding from the Flood Insurance Rate Map.

Claire Elliot

Comment 4: Ms. Claire Elliot, Chestnut Ave., commended the District for its efforts to protect riparian corridors downstream of Highway 101 and requested clarification on how floodplains are determined and what jurisdiction determines whether or not a property lies within a floodplain.

Response 4: The Federal Emergency Management Agency (FEMA), under the auspices of the National Flood Insurance Program (NFIP), determines the areal extent of floodplains for streams, rivers and coastal areas throughout the United States. Using hydrologic and hydraulic analyses, FEMA establishes the points of overflow from existing creeks or rivers during a one-percent (100-year) storm event, then prepares the floodplain maps for each community. These are updated periodically.

Any property owner can use the FEMA maps (known as Flood Insurance Rate Maps, or FIRMs) to determine if his/her property lies in a floodplain. Such maps are made available at city or county offices. If a property changes owners or an existing mortgage on a property is refinanced, the financial institution that handles the loan will use the FEMA maps to determine if a property lies within a floodplain, and will require the homeowner to purchase flood insurance in order to secure the loan.

Mike Nolan

Comment 5: Mr. Mike Nolan, 2935 Waverley St., stated his agreement with Mr. Bradley's comments and expressed concern that the value of his property would be adversely impacted by the unpleasant aesthetics of raised floodwalls. He requested clarification on the diversion structure operating guidelines and asked how properties downstream of the diversion would be protected from flooding induced by operation of the diversion structure.

Response 5: With regards to the concerns regarding property values, please refer to Section III-M, Response to Comment 3.

Relative to the guidelines for operation of the diversion, flow monitors are installed on Matadero Creek. These monitors dictate when staff will close the diversion. The diversion would be partially closed if diverting water threatened flooding downstream on Matadero Creek. During emergency flood events, District staff is stationed at the diversion structure and will open and close the diversion structure as necessary to handle floodwaters. The expectation is that after completion of the project, Matadero Creek will be able to handle the full diversion of water from Barron Creek.

Comments relative to continued monitoring of water flow on Matadero Creek after completion of the project would be taken into consideration.

Comment 6: Mr. Nolan expressed concern that the project was an inexpensive fix and suggested that the area would be better served by installation of U-shaped.

Response 6: Please refer to the responses to the comment letter written by Ms. Julie Nolan, Section III-M of this FEIR.

Julie Nolan

Comment 7: Ms. Julie Nolan, 2935 Waverley St., stated her opposition to the project and asked what consideration the project gives to future increased runoff and drainage issues that will result from development of the foothills. She asked if there was a contingency plan for breaks in floodwalls and what agency would be responsible for flood damage caused by ineffective or damaged floodwalls.

Response 7: With regards to increased runoff from future development in the hills, please refer to the responses to the comment letter written by Libby Lucas, Section III-K (Comment 5) of this FEIR.

Relative to concerns regarding contingency plans for breaks in floodwalls, the District inspects floodwalls annually and members of the public should contact the District to report any damages noted. If damages result from a floodwall break, the District has a procedure by which claims can be filed and evaluated.

Comment 8: Ms. Nolan expressed her opinion that damages caused by water that is diverted and transported away from its natural course should be the responsibility of the agency that created the diversion system, regardless of the specific failure cause. She stated opposition to installation of floodwalls in lieu of U-shaped channels.

Response 8: Damages from flooding, the causes of such damages, and the legal responsibility associated with them, are dependent on the facts of each situation. Flood protection is designed in accordance with the feasible alternatives available under the circumstances and engineering standards. Please also refer to the comments and responses in Section III-M.

Bob Moss

Comment 9: Mr. Bob Moss, 4010 Orme, asked the Board to consider what percentage of the project cost would be spent raising floodwalls to meet the nationwide 4-foot freeboard requirement, and whether or not the District was working with the Federal Emergency Management Agency (FEMA) to lower the requirement on Matadero and Barron Creeks. He suggested that it be clarified to residents that not all floodwalls will be raised under the proposed project and asked when FEMA sign-off was anticipated.

Response 9: The estimated cost of floodwall improvements between Highway 101 and Alma Street, including the replacement of Louis Road Bridge, is $6 million, or 43 percent of the total estimated project cost of $14 million. FEMA approved the use of risk-based analysis to determine freeboard requirements along Matadero Creek in June 2002. No floodwall modifications are proposed for Barron Creek. It will take 12 to 18 months for FEMA to review and sign off on the completed project.

Libby Lucas

Comment 10: Ms. Libby Lucas, Los Altos resident, expressed concern relative to increased sediment fallout on Matadero Creek. She requested the Board evaluate the Palo Alto Flood Basin to determine its capacity; the performance of its existing floodgates; and the impact of Permanente Creek. She suggested the Board work with Stanford for installation of a retention system, and requested clarification on the duration of storm the project was been designed for.

Response 10: The capacity and operations of the Palo Alto Flood Basin were analyzed in detail as part of this Planning Study. Appendix G in the Engineer's Report, bound with this FEIR, provides the results of this study.

The performance of the existing tide gates in the PAFB was also assessed, particularly as regards the discharge of stormwater runoff from the PAFB to San Francisco Bay periods of high creek flow and high tides.

Permanente Creek does not impact the Palo Alto Flood Basin or any aspects of this project because it flows to Charleston Slough.

As described in Chapter 5 of the Engineer's Report, District staff met several times with Stanford officials to explore the possibility of constructing an off-stream storage pond on Stanford lands. Stanford declined to participate in such a project, and is not interested in leasing the necessary land to the District.

The proposed project is designed to handle a 72-hour, 100-year storm event, based on statistical data documented over 60 years and the Christmas 1955 storm pattern, which was the worst on record.

James Sutherland

Comment 11: Mr. James Sutherland, 3007 Waverley St., addressed the Board relative to his attendance at a previous meeting where he reported that an attorney stated that it was illegal to improve property upstream at the detriment to property downstream.

Response 11: We are not aware of any statute expressly governing the improvement of upstream property in the situation you describe. Courts apply a standard of care to the actions of both upstream and downstream property owners in determining the responsibility for injury or damage.

It is not illegal to change the flow rates or divert water from one stream to another provided you have the appropriate property interests and permits. Liability for damages may attach to the creation of unreasonable risk of harm as explained in the answer to the previous question. When the flows change because of a public works improvement, there are additional responsibilities to avoid taking private property for public use without just compensation. Unless the risk of damage due to flooding an upstream or downstream property is unreasonably increased or unreasonably threatened to occur on property that was not subject to flooding before a project, a reduction of flood risk in a post project condition, even one that does not meet the design objectives, is probably not actionable if some damage occurs to property in a flood plain as a result of flooding.

Brian Reed

Comment 12: Mr. Reed commented on the appearance of the Waverley Street Bridge monitoring station and requested the District consider aesthetic improvements.

Response 12: The Waverley Street Bridge monitoring station is not part of the proposed project and has not been evaluated in this EIR.

Marian Seah

Comment 13: Ms. Marian Seah, 3075 Louis Rd., stated that the language used in the EIR, the presentation, and the meeting's discussion was too technical, and requested a comprehensive breakdown of pros and cons associated with the project.

Response 13: District staff has contacted Ms. Seah and helped her understand the project.

Paul Seah

Comment 14: The channel bypass is designed to work for how many years before sediment impedes its effectiveness.

Response 14: The bypass is designed to be effective with up to a foot of average sediment deposition. Based on past history, sediment removal is predicted once every four years on average. However, the frequency of cleaning will vary as needed depending upon climate and experience.

IV. REVISIONS TO THE TEXT OF THE DRAFT EIR

The following section contains revisions to the text of the Draft Environmental Impact Report, Matadero/Barron Creeks Remediation Project, dated October 2001. All deletions are shown ~~with a line through the text~~ and all new text is shown with underlining.

Draft Environmental Impact Report

Page No.	Revision
Page i	Project Description –Objective #5 5. obtain a letter of map revision from FEMA to remove the existing flood prone areas due to riverine flooding from the Flood Insurance Rate Map; and
Page ii	Areas of Known Controversy Local residents are concerned about the loss of aesthetic value in the area because of the proposed floodwalls and headwalls. ~~In some instances,~~ At one bridge crossing, the new headwall~~s~~ will be ~~between 6-7~~ 5 feet above sidewalk level. In addition, the residents are concerned about the potential for flooding in the general vicinity of Matadero Creek.
Page v	Impacts and Mitigation – Table 1

Resource	Impact	Mitigation	Level of Impact
Visual and Aesthetics	The proposed increase in floodwall and headwall heights would result in a visual impact	These mitigations will be incorporated into the project to reduce the visual impacts: 1. Temporary flood barriers will be installed for part of the year at along maintenance access ramps at the Greer and Louis Road bridge crossings . 2. Sidewalks will be reconfigured (raised) at the Greer and Louis Road bridge crossings. 3. The project design team will ~~determine the feasibility of~~ incorporate ~~ing~~ decorative architectural elements into the ~~floodwall and~~ headwall designs at the Greer Road, Louis Road and Waverley Street bridges. ~~, which may reduce the impact, but not to a less than significant level~~.	~~Significant Unavoidable Impact~~ Less than Significant with Mitigation

Page viii Summary: Off-Stream Storage Alternative

Construction of this alternative would eliminate the need for floodwall improvements upstream of Ross Road and would reduce the floodwall and headwall height needed at Louis Road and Greer Road. However, due to the location of the off-site storage basin, implementation of this alternative could impact riparian habitat and red-legged frog populations. Furthermore, as stated in the Engineers Report, the total cost of this alternative is estimated to be ~~$80,000,000~~ $40,000,000 compared to $6,000,000 for the proposed project.

Page 1 Section I. A.: Background Overview

The District estimates that riverine flooding during a one-percent event would cause average annual flood damage of approximately $1.9 million.

Page 2 Section I. C.: Project Objectives

5. obtain a letter of map revision from FEMA to remove the existing flood prone areas due to riverine flooding from the Flood Insurance Rate Map,

Page 2 Section I. D.: Detailed Description of the Proposed Project

Based upon the hydrologic/hydraulic system of Matadero and Barron Creeks and the evaluation of project alternatives, the proposed project evaluated in this EIR consists of improvements downstream of Highway 101, as well as upstream of Highway 101, between the freeway and ~~El Camino Real~~ Alma Street, on Matadero Creek (see Figure 2). The Engineer's Report for this project is attached to this document.

Page 5 Section I. D.: Detailed Description of the Proposed Project, Downstream of Highway 101

The bypass channel would travel along the fence line, just north of the MSC, ~~before turning to the southeast and~~ then would curve towards the southeast through the corner of the MSC, and continue southeast along the MSC border before outfalling into the PAFB (see Figures 3 and 4). A proposed floodwall on the south side of the bypass will protect the MSC from flooding.

Page 6 Section I. D.: Detailed Description of the Proposed Project, Upstream of Highway 101, Replacement of Louis Road Bridge

The replacement of the Louis Road Bridge structure would require complete temporary road closures and traffic detours, as well as protection and temporary relocation of utility lines within the roadway (refer to **Section II,**

I., Construction-Related Impacts, and **Section II. J., Utilities and Services**, of this EIR). The proposed bridge replacement is anticipated to require 6-9 months to complete. ~~and will be constructed after the overflow bypass channel.~~

Page 6 Section I. D.: Detailed Description of the Proposed Project, Upstream of Highway 101, Modify Channel Upstream and Downstream of Louis Road

The construction of the U-frame channel modifications in this area would also include the replacement of any existing floodwalls impacted by the construction. ~~and extension of the existing low-flow/fish passage channel throughout the new construction.~~ The proposed U-frame channel modification is anticipated to require approximately three months to complete and will occur concurrently with the reconstruction of the bridge.

Page 6 Section I. D.: Detailed Description of the Proposed Project, Upstream of Highway 101, Raise Floodwalls and Headwalls

There are approximately 14,500 linear feet of existing floodwalls along Matadero Creek between the existing Highway 101 bridge structures and the existing Alma Street box culvert. Based upon the hydraulic analysis completed for the project, approximately 13,700 linear feet (90 percent) of the floodwalls in the project area need to be raised to meet the FEMA freeboard requirements. ~~The existing and required floodwall heights above the bridge sidewalks are shown in Table 1. Floodwalls as high as 6.7 feet would be required between Greer Road and Ross Road to meet the FEMA freeboard criteria.~~ Along the creek channel, the existing floodwalls must be raised between one and three feet in order to meet the freeboard required by FEMA.

The raised floodwalls would consist of cast-in-place concrete wall extensions constructed directly on top of and doweled into the existing floodwalls. However, three other options are available to replace or strengthen the wall segments. These options are described in Chapter 7 of ~~listed in~~ the Engineer's Report. The proposed floodwall improvements are anticipated to be complete in ~~require~~ approximately 12 months ~~to complete~~. Floodwall improvements would be constructed such that work on the northwest bank proceeds roughly in tandem with work on the southeast bank, so that equal flood protection (and risk) is provided on both sides of the channel. ~~The floodwall improvements would occur after reconstruction of the Louis Road Bridge.~~

Page 9 Section I. D.: Detailed Description of the Proposed Project, Upstream of Highway 101, Raise Floodwalls and Headwalls

~~In addition,~~ There are seven bridge structures that cross Matadero Creek within the project limits. Several of these structures experience pressurized flows during the one percent flood event; ~~and~~ therefore, extension of the existing headwalls is required to meet ~~the~~ FEMA freeboard requirements.

During the process of obtaining a Conditional Letter of Map Revision (CLOMR) from FEMA, the District conducted a risk-based analysis to determine the site-specific freeboard necessary to pass the one-percent flood discharge. Based on these results, the District proposed, and received approval from FEMA, to use risk-based freeboard criteria between Bayshore Road and Ross Road, and thus lower the required headwall and floodwall heights. Upstream of Ross Road to Alma Street, standard FEMA freeboard criteria will be applied. The standard criteria require four feet of freeboard at bridge crossings and for a distance of 100 feet upstream and downstream of the bridge. ~~The project proposes raising the existing headwalls at the Greer Road, Ross Road, and Waverley Street bridges. The proposed headwall improvements are anticipated to require approximately 3-6 months to complete.~~ ~~Headwall modifications at Louis Road would be included as part of the proposed bridge replacement (refer to discussion above).~~

Table 1 presents the existing and required headwall heights at the Matadero Creek bridge crossings that are within the project limits. These heights are measured in feet from the sidewalk. Headwalls at the Greer Road and Louis Road bridge crossings must be raised between 0.7 to 1.5 feet to meet FEMA freeboard requirements. These wall heights are determined from risk-based freeboard criteria. Upstream of Ross Road, standard FEMA freeboard criteria apply, and the upstream face of the Waverley Street bridge must be raised by 1.6 feet. As this headwall wraps around the edge of the bridge structure, it must continue to provide 4 feet of freeboard for a distance of 100 feet upstream of the bridge. Along the remaining stretch of channel, floodwalls must provide 3 feet of freeboard. At the downstream face of the Waverley Street bridge, the existing headwall is adequate to provide four feet of freeboard protection; however, walls will have to be raised by approximately 3 feet for a distance of 100 feet downstream of the bridge face to meet FEMA criteria, and by varying heights further downstream to provide 3 feet of freeboard..

The proposed headwall improvements are anticipated to require approximately 3-6 months to complete. Headwall modifications at Louis Road would be included as part of the proposed bridge replacement.

MODIFIED TABLE 1
EXISTING AND REQUIRED HEADWALL HEIGHTS AT MATADERO CREEK BRIDGE CROSSINGS
(IN FEET ABOVE HEIGHT OF SIDEWALK)

Bridge	Existing Headwall Height (ft)	Required Headwall Height (ft)
West Bayshore Road		
Downstream	0.7	0.7
Upstream	0.7	0.7
Greer Road		
Downstream	3.1	3.8
Upstream	3.8	5.0
Louis Road		
Downstream	2.2	2.2
Upstream	2.8	4.3
Ross Road		
Downstream	2.3	2.3
Upstream	2.3	3.1
Middlefield Road		
Downstream	2.3	2.3
Upstream	2.3	2.3
Cowper Street		
Downstream	2.4	2.4
Upstream	2.4	2.4
Waverley Street		
Downstream	2.2	2.2
Upstream	2.2	3.8
Alma Street/SPRR		
Downstream	0.6	0.6
Upstream	0.6	0.6

~~During the process of obtaining a Conditional Letter of Map Revision (CLOMR) from FEMA, the District will conduct a risk-based analysis to determine the site-specific freeboard necessary to pass the one percent flood discharge. Based on these results, the District proposes to prepare a request to FEMA to relax the freeboard criteria, and thus lower the required floodwall and headwall heights. If the freeboard criteria can be relaxed, the required wall heights between Greer Road and Louis Road might be reduced to 5.3 feet. However, because it is not known at this time whether FEMA will agree to relax the freeboard criteria, this EIR analyzes the impacts of floodwalls constructed to standard FEMA freeboard height requirements.~~

The project will also include construction of a new warped transition on the south channel bank at the downstream face of the Alma Street/SPRR culvert.

Improvements to an existing 84-inch diameter storm drain outfall at this location will be made.

Page 9 Section I. D.: Detailed Description of the Proposed Project, Enhancement Opportunities

… The District's Board has directed Staff not only to develop adequate mitigation for the significant impacts of a project, but also to present to the Board options for "environmental enhancements" related to a project pursuant to the Boards' Ends Policy of improving the environmental quality of streams and environmental resources in its jurisdiction. In this instance, Staff has identified certain options for enhancements, ~~but these have not been sufficiently developed or evaluated in this document~~ and in the case of Enhancements 1 and 2, Staff has directed H.T. Harvey & Associates, ecological consultants, to evaluate these enhancements and provide a basis for the Board's adoption of these enhancements. Enhancement No. 2 is no longer a recommended enhancement; instead, it has been incorporated into the project as mitigation for riparian impacts to provide more on-site mitigation. It has been evaluated in sufficient detail to be ~~Accordingly, they have been reviewed in this Draft EIR at lesser detail in order to obtain from the Board guidance as to those options, if any, which may be worth further development and environmental review. They are thus not~~ part of the proposed project evaluated in this EIR. In the event that the Board determines that Enhancements 1 or 3 ~~one or more of these enhancements~~ are worth pursuing, further environmental review would be conducted in order to supplement the analysis done in this EIR to the extent necessary to satisfy the requirements of CEQA. The project that is proposed for adoption in this EIR does not ~~in any manner~~ commit the Board to the adoption of ~~any of these e~~ Enhancements 1 or 3.

Page 12 Section I. D.: Detailed Description of the Proposed Project, Enhancement Opportunities, Enhancement No. 1.

The proposed bypass channel requires a 3-foot tall floodwall on the western edge of the channel. The top of floodwall will be at 8.0 feet NGVD, and is necessary to protect the MSC from floodwaters in the bypass channel. The trail would be located between the floodwall and the fence on the MSC boundary.

Page 13 Section I. D.: Detailed Description of the Proposed Project, Enhancement Opportunities, Enhancement No. 2.

The downstream reach of Matadero Creek has become a heavily vegetated riparian area due to continual sediment deposition. As a result, the area now provides valuable riparian habitat in the Baylands area. However, this habitat is a mixture of native and non-native vegetation. To enhance the quality of habitat in this area, the District proposes to remove all non-native vegetation and replant the exposed areas with native vegetation. Recommended species for replanting include red willow (Salix laevigata), Fremont cottonwood (Populus fremontii), California buckeye (Aesculus californica), coyote brush (Baccharis pilularis), California blackberry (Rubus ursinus), and blue elderberry (Sambucus mexicana). In addition, the District ~~will~~ would include the continued removal of non-native vegetation as part of the downstream maintenance plan.

Based on biotic surveys, H.T. Harvey & Associates has determined that approximately 0.6 acres of habitat along this reach of Matadero Creek would be appropriate for removal of non-native vegetation and replacement with native vegetation. In response to several comments submitted by the public on the Draft EIR, this enhancement has been incorporated as part of the Matadero/Barron Creeks Long-Term Remediation Project to increase the amount of on-site mitigation.

Page 17 Table 2 – Matadero Creek Maintenance Guidelines

Reach	Channel Type	Maintenance Criteria
Existing and Proposed Facilities Mitigated in this EIR		
Palo Alto Flood Basin to ~~Highway 101~~ 100 feet downstream of E. Bayshore Rd.	Modified floodplain w/ 20-ft wide floodway on north side	- Vegetation growth along the banks of the low-flow channel is to be trimmed ~~removed~~ to maintain a clear floodway of 20 feet.
Overflow Bypass Channel downstream of Highway 101	Gravity retaining wall system w/ hard maintenance bottom	-Sediment within the overflow bypass will be removed at the downstream side of Highway 101 when it exceeds a depth of one foot above the concrete channel lining. -Emergent vegetation will be removed once it exceeds 4 feet in height.
Sediment Basin	Basin at entrance of the overflow bypass channel	-Sediment within the sediment basin will be removed when it exceeds a depth of two feet.
100 feet downstream of E. Bayshore 0Road to Highway 101	Partial earth bottom, partial concrete-lined channel	-Sediment deposition level under E. Bayshore Road will be inspected annually. Sediment removal will be performed when top of deposited sediments measures -3 feet NGVD (1 foot above the channel invert of -4 feet NGVD). Removal of sediment in this reach will be performed in conjunction with removal of sediment under Highway 101 to Greer Road, as described below.
Existing Facilities Mitigated in the District's Stream Maintenance Program		
~~Flood Basin to Highway 101~~	~~Modified floodplain w/ 20-ft wide floodway on north side~~	~~-Vegetation growth along the banks of the low-flow channel is to be removed to maintain a clear floodway of 20 feet.~~
Under Highway 101 to ~~Greer Road~~ West Bayshore Rd.	Concrete-lined channel	- Debris shall be removed from the nose of the bridge pier at Highway 101 when it exceeds a total width of 3 feet. - Remove sediment to profile documented in the 2002 Final Engineer's Report. This work is to be performed in conjunction with removal of sediment under East Bayshore Road and downstream for a distance of 100 feet.

~~Highway 101~~ West Bayshore Road to Greer Road	Sacked concrete banks, natural bottom	- District crews will perform annual inspections of the creek sections where City storm drains discharge near the creek invert. - Sediment within the entire reach will be removed ~~when it reaches an average depth of 2 feet above the concrete invert at Highway 101~~ to profile documented in the 2002 Final Engineer's Report. This work is to be performed in conjunction with sediment removal as described above, and will include sediment removal in front of City storm drain outfalls. -Emergent vegetation will grow in the natural channel bottom upstream of ~~Highway 101~~ West Bayshore Road and must be completely removed when it exceeds a height of 4 feet.
Greer Road to Alma Street	Concrete-lined channel w/ low flow channels	-Remove sediment when an average sediment depth of one foot is reached. -Vegetation growing on bottom sediment is to be removed when height of the growth exceeds 4 feet. The upstream side of the bridge piers at Greer Road will be regularly inspected and debris removed from the pier noses when the width exceeds 3 feet.
Alma Street to Park Boulevard	Concrete-lined channel w/ low flow channels	-Debris will be removed from the nose of the splitter wall upstream of the SPRR bridge when a width of 3 feet is exceeded. -Sediment will be removed from the channel bottom when the average depth exceeds 1 foot.
Park Boulevard to El Camino Real	Concrete-lined channel w/ low flow channels	-Sediment will be removed when it reaches an average depth of 1 foot. -If vegetation becomes established in the sediment deposits, both will be removed when the height of vegetation exceeds 4 feet

Page 20 Section I. F.: Uses of the EIR

This Environmental Impact Report (EIR) is intended to provide the District Board of Directors, other public agencies, and the general public with the relevant environmental information to use in considering the proposed project. Actions taken which would rely upon this EIR could include but are not limited to:

1. Approval of project design (District);
2. Award of design and construction contract(s) (District);
3. Grant of easement (City of Palo Alto);
4. Dedication of park land (City of Palo Alto);
5. Street opening permit(s) (City of Palo Alto).

Page 22 Section II. A.: Land Use, Existing Land Use and Creek Channel Characterization.

The project portion of Matadero Creek extends from the PAFB upstream to ~~El Camino Real~~ Alma Street (refer to Figure 2). The total length of creek involved in the proposed project is approximately 1.5 miles. Downstream of Highway 101, Matadero Creek is a narrow, natural channel with heavy riparian vegetation along both sides of the creek. This section of the creek is bordered by the PAFB to the northeast, the City of Palo Alto Municipal Services Center (MSC) to the southeast, and the Emily Renzel ~~wetland restoration~~ Marsh to the northwest.

Between Highway 101 and Greer Road, Matadero Creek has an earthen bottom and sacked concrete banks. ~~El Camino Real~~ Between Greer Road and Alma Street, Matadero Creek is a concrete-lined, trapezoidal and U-frame channel. Most of the land uses surrounding this portion of the creek are single family detached residential homes. Other land uses along the creek include the PG&E substation just west of Highway 101, a church just south of Middlefield Road, and an Arco service station, just north of Middlefield Road. ~~and other commercial uses between Alma Street and El Camino Real.~~

Page 23 Section II. A.: Land Use, Existing Land Use and Creek Channel Characterization.

Several roadway bridges have been constructed across the Matadero Creek channel within the project area, including at Greer Road, Louis Road, Ross ~~Way~~ Road, Middlefield Road, Cowper Street, Waverley Street, Bryant Street, and Alma Street. Numerous underground utilities are also present in the area of these existing bridge crossings. In addition, two buried 60 kilovolt (kV) electric transmission lines, a sanitary sewer line, and a buried communications cable run along the northeastern side of the Matadero Creek channel. The 60 kV lines are reportedly encased in insulating oil. Additional detail about these utilities is provided in **Section II. J., Utilities and Services**, of this EIR.

The creek channel ~~upstream of~~ between Highway 101 and Alma Street is closed to the public and does not have any known recreational uses. Downstream of Highway 101, the Palo Alto Flood Basin contains a network of trails and recreational areas. The levee adjacent to the downstream reach of Matadero Creek is a designated trail that connects to the San Francisco Bay Trail at the confluence of the creek and San Francisco Bay. In addition, there is a paved trail that runs parallel to East Bayshore Road in the vicinity of the project area. This trail crosses over Matadero Creek and continues along the west side of the MSC property to Adobe Creek. This latter trail intersects the maintenance road that runs along the east and south boundaries of the MSC. The maintenance road is not a designated trail but it is utilized, to some extent, by the people in the area.

Page 25 Section II. A.: Land Use, Land Use Impacts from the Project, Recreational Impacts.

- Implementation of the proposed project will have no impact on recreational facilities (No Impact).

Page 61 Section II. D.: Vegetation and Wildlife, Vegetation and Wildlife Impacts, Impact Assessment Methodology

The following section addresses potential impacts to biotic resources resulting from: (1) construction disturbance due to widening of approximately ~~120~~ 125 feet of concrete-lined channel in the vicinity of the Louis Street bridge;

Page 64 Section II. D.: Vegetation and Wildlife, Vegetation and Wildlife Impacts, Maintenance Impacts

Maintenance activities associated with the operation of Matadero Creek after the proposed improvements are in place will remove new vegetative growth within the creek and the bypass channel. New vegetation growth in the creek and bypass channel has the potential to reduce flood capacity. Maintenance activities will follow established Best Management Practices (BMPs) listed under proposed mitigation, to ensure minimal disturbance of wildlife species in the area. Implementation of the proposed BMPs would reduce the impact to less than significant. All future maintenance impacts are mitigated for as part of this project.
~~be consistent with the Stream Maintenance Program guidelines to ensure minimal disturbance of wildlife species in the area and would be less than significant~~

Page 64 Section II. D.: Vegetation and Wildlife, Vegetation and Wildlife Impacts, Indirect and Direct Losses of Riparian Habitat

A total of ~~0.97~~ 0.78 acres of willow riparian habitat will be impacted by implementation of the proposed project. ~~The project will result in approximately 0.78 acres of direct impacts to CDFG jurisdictional willow riparian habitat. Construction impacts will remove an additional 0.19 acres of CDFG jurisdictional willow riparian habitat.~~ (See Figure 10)

Page 68 Section II. D.: Vegetation and Wildlife, Mitigation Measures for Vegetation and Wildlife Impacts, Indirect and Direct Losses of Wetland Habitat

Impacts to wetland habitat (~~0.10~~ 0.11 acres) will occur within the ~~willow riparian habitat impact area~~ proposed bypass alignment area (see Figure 3) during construction and future maintenance activities. Implementation of the following mitigation measures would reduce this impact to a less than significant level. In addition to implementing the proposed mitigation, prior to grading, the District would obtain and comply with permits from the Corps, CDFG, and the RWQCB, as necessary.

1. **Construction Management.** A Construction Management Plan will be implemented by the District to ensure that construction crews are made aware of sensitive habitats and the measures necessary to avoid them. (See District BMP 17)

2. **Replacement.** The project would create new wetland habitat to replace the wetlands to be impacted. The following is a description of the proposed mitigation location, basic design elements, and mitigation goal.

   A suitable location for creating new wetlands occurs east of the project within the PAFB. The PAFB is a mosaic of riparian, wetland and ruderal habitats. Wetland mitigation could be created, adjacent to the existing wetland habitat, by excavating ruderal (upland) areas on the east side of the proposed bypass channel to an elevation (approximately –1.2 feet NGVD) appropriate for the establishment of wetland vegetation and hydrology. Based on a field examination, the soils to be exposed by the proposed excavation would be fully suitable for wetland habitat restoration. Following excavation the soils should be lightly ripped to relieve compaction.

   The restored wetland would be located completely on site between the bypass channel and the PAFB and would have muted tidal hydrology similar to existing wetlands within the flood basin. Both freshwater wetlands and salt marsh would be restored at this location. Planting the site with appropriate plant species ~~salt tolerant plant species such as pickleweed and marsh gumplant~~ immediately following excavation would be necessary to facilitate wetland habitat establishment. Furthermore, a non-native plant eradication program would need to be undertaken to prevent colonization by invasive species.

   The construction of the overflow bypass will create conditions suited to wetland establishment by providing an open, relatively flat-bottomed channel. As described in Table 2 of this EIR, necessary maintenance (i.e., sediment and emergent vegetation removal) will be performed on a periodic basis to maintain the hydraulic capacity of this bypass. These future maintenance activities will not result in the removal of any wetlands currently existing, and therefore the project will not involve any impact in this respect on existing wetlands. For those wetlands that may become established in the future in the concrete bottom bypass, their periodic removal will not result in the permanent loss of even these wetlands. As sediment deposits grow in subsequent seasons, re-growth of vegetation in the bypass is anticipated.

   The project proposes to provide mitigation ~~at a 2:1 ratio (mitigation: impacts)~~ by creating a minimum of ~~0.20~~ 0.22 acres of new wetland habitat. The new wetland habitat will be a combination of both freshwater marsh and diked salt marsh. The mitigation goal is to create high quality wetland habitat that meets ~~achieve~~ the target acreage ~~of high quality wetland habitat that meets~~

~~Corps jurisdictional criteria~~ and replaces the habitat functions and values of the impact areas. The mitigation goal should be achieved within three to five years of construction. ~~The purpose of the mitigation ratio is to compensate for the time necessary to replace lost habitat.~~

Page 69 Section II. D.: Vegetation and Wildlife, Mitigation Measures for Vegetation and Wildlife Impacts, Indirect and Direct Losses of Wetland Habitat, Conclusion

Conclusion: **With implementation of the above mitigation, the project's indirect and direct impacts on wetland habitat, resulting from construction and on-going maintenance activities, would be reduced to a less than significant level (Less Than Significant Impact with Mitigation)**

Page 69 Section II. D.: Vegetation and Wildlife, Mitigation Measures for Vegetation and Wildlife Impacts, Indirect and Direct Losses of Riparian Habitat

Construction of the overflow bypass channel would result in approximately ~~0.97~~ 0.78 acres (located between the existing creek channel and the MSC property) of direct impacts to ~~CDFG jurisdictional~~ habitat. Willow riparian habitat impacted by the sediment basin and bypass channel would be mitigated with ~~at a ratio of 3:1. This results in a total mitigation requirement of 2.91~~ 2.34 acres of riparian habitat.

Page 70 Section II. D.: Vegetation and Wildlife, Mitigation Measures for Vegetation and Wildlife Impacts, Indirect and Direct Losses of Riparian Habitat, On-Site Mitigation

It is estimated that approximately ~~0.37~~ 0.97 acres of riparian mitigation can be accommodated adjacent to the proposed bypass channel and in areas "temporarily" impacted by construction activities. This is not adequate for all of the project's mitigation requirements; therefore, off-site mitigation is also proposed. Table 6 summarizes the impacts to riparian habitat and the proposed acreage of mitigation, both at the project site and at an off-site location.

TABLE 6
SUMMARY OF RIPARIAN IMPACTS AND PROPOSED MITIGATION

Riparian Impact / Mitigation	No. of Acres
Project Impacts to Riparian Habitat	0.78
Proposed Mitigation	2.34
Proposed On-site Mitigation	0.97
Proposed Off-Site Mitigation	1.37

Page 72 Section II. D.: Vegetation and Wildlife, Mitigation Measures for Vegetation and Wildlife Impacts, Indirect and Direct Losses of Riparian Habitat

The mitigation goal is to create high quality riparian habitat that meets the target acreage. ~~of high quality riparian habitat within CDFG jurisdiction.~~ The riparian habitat would provide some habitat values in the first five years following planting, but would not ~~begin to~~ provide the values of mature riparian forest until approximately 8-10 years after planting.

Page 72 Section II. D.: Vegetation and Wildlife, Mitigation Measures for Vegetation and Wildlife Impacts, Indirect and Direct Losses of Riparian Habitat

2. **Reduce Project Impacts to the Riparian Corridor During Construction Phase.** During the construction phase of any proposed development improvement, the riparian corridor would be protected from potential runoff and further encroachment. A temporary plastic fence would identify the edge of the construction buffer zone. Contractors on the site would be required to remain within the prescribed 10-foot buffer zone.

3. **Reduce Impacts from Ongoing Maintenance Practices**~~.~~ On-going maintenance activities after project construction is completed will follow established Best Management Practices (BMPs) listed under proposed mitigation to ensure minimal disturbance of plant and wildlife species in the area. See Appendix C, District BMPs 15, 16, 17, 19, and 22. In addition the following tree-trimming BMP will also be used for maintaining a 20-foot floodway in the natural Matadero Creek channel downstream of Highway 101:

> Do not prune more than 5 percent of live twigs and foliage unless an imminent hazard or end-weight reduction problem requires attention. Trees will be pruned for creation of adequate clearance in conformance to the *Tree Pruning Guidelines* of the International Society of Arborculture.

Conclusion: **With implementation of the above mitigation, the project's indirect and direct impacts on riparian habitat, resulting from construction and on-going maintenance activities, would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

Page 72 Section II. D.: Vegetation and Wildlife, Mitigation Measures for Vegetation and Wildlife Impacts, Potential Impacts to Steelhead Rainbow Trout and Fall-run Chinook Salmon

1. **Limit construction to the dry season.** ~~**and do not operate equipment in the live stream channel.**~~ Construction within the channel would be

restricted to the dry season (June 15 – October 15), the period in which there is minimal water in the channel and in which the presence of these species within the project area is expected to be minimal (see District BMP 20)

Page 81 Section II. E.: Water Quality, Water Quality Impacts

Sediment removal activities in the creek, sediment basin, and overflow bypass channel have the potential to degrade water quality. To ensure that maintenance activities will not impact the creek, District maintenance crews will comply with the guidelines established in the Stream Maintenance Program for sediment removal. (See Appendix C) All impacts of long-term maintenance have been mitigated for as part of this project.

Page 94 Section II. H.: Visual and Aesthetics, Existing Setting, Upstream of Highway 101

Upstream of Highway 101, Matadero Creek flows through a mostly residential area of Palo Alto. The creek is a concrete trapezoidal channel along this stretch, with adjacent single-family houses and apartments. Most of the residential units face away from the creek. The creek channel is visible from some residential lots and at all bridge crossings. In addition to the residences, a church and an ARCO service station are located along the creek channel at Middlefield Road, and a PG&E substation is located along the creek channel, just ~~south~~ west of Highway 101.

Page 98 Section II. H.: Visual and Aesthetics, Impacts Upstream of Highway 101, Floodwalls and Headwalls Along Channel Banks

The project would result in significant visual changes along ~~most~~ certain portions of the project reach upstream of Highway 101 because the project includes the extension of the floodwall heights along both sides of the creek channel and along the headwalls at ~~the~~ certain bridge crossings. To meet the FEMA freeboard criteria, headwalls ~~floodwalls~~ as high as ~~seven~~ 5.0 feet above the ~~top of bank~~ existing sidewalk would be required on the upstream side of the Greer Road Bridge. ~~between Greer Road and Louis Road to meet the FEMA freeboard criteria.~~ Existing floodwalls along the creek channel that are now 3.0 to 4.0 feet high would be ~~raised to approximately 7 feet, an increase of 3-4 feet~~ raised by 1 to 2 feet in certain channel reaches. Generally, these floodwalls are located behind rear property line fences that are 2 to 3 feet taller than the existing floodwalls.

~~Furthermore, the headwalls at the Greer Road Bridge and the Louis Road Bridge would need to be raised approximately 3 to 4 feet.~~ ~~This increase in headwall height would result in headwalls between 6.0 to 7.0 feet above~~

~~existing sidewalks at these bridge crossings.~~ At Greer Road and Louis Road bridges, ~~these~~ floodwalls and headwalls would be more visually obstructive than they are now. Matadero Creek is ~~not an earthen channel. For some reaches between Highway 101 and El Camino Real~~ a concrete-lined channel between Greer Road and Alma Street, and the creek has little aesthetic value in some reaches (see photos 3 and 4). Other reaches, however, could be considered a scenic or aesthetic resource in this urban environment because they ~~it~~ do~~es~~ contain some aquatic vegetation and occasional wildlife. The proposed height increase in the headwalls across Greer Road Bridge and for a distance upstream of Greer Road Bridge and Louis Road Bridge ~~The development of the proposed floodwalls and headwalls next to the bridge crossings~~ would block existing views of the creek channel. This would significantly alter the visual character of the area.

Page 99 Section II. H.: Visual and Aesthetics, Mitigation for Visual and Aesthetics Impacts

- ~~During the process of obtaining a~~ As part of the application for a Conditional Letter of Map Revision (CLOMR) from FEMA, the District ~~will conduct~~ has conducted a risk-based analysis to determine the site-specific freeboard necessary to pass the one percent flood discharge. Based on ~~these~~ the analytical results, the District ~~would prepare~~ prepared a request to FEMA to ~~relax the freeboard~~ apply risk-based freeboard criteria, and thus lower the required floodwall heights in several reaches along Matadero Creek. FEMA has approved this request, and the required headwall and floodwall heights in the reaches between West Bayshore Road and Ross Road have been significantly reduced. The highest headwall requirement in this stretch of creek is 5.0 feet above the sidewalk height at the upstream face of Greer Road Bridge. ~~If the freeboard criteria can be relaxed, the required wall heights could be reduced by up to 5.3 feet. in the most optimistic case However, because it is not known at this time whether FEMA would agree to use risk-based relax the freeboard criteria, the impact from visual obstruction by 7-foot high walls is considered significant and unavoidable.~~

- Sidewalks along the Greer and Louis Road bridge crossings will be reconfigured to offset the increase in headwall heights, thus providing the same view of the creek for pedestrians as exists today.

- Temporary (removable) flood barriers, consisting of galvanized steel sill plates and end plates embedded in concrete with sealed aluminum planks will be installed along the maintenance access ramps at Greer and Louis Road bridges on a seasonal basis. The barriers will be set in place to achieve the necessary freeboard protection during the rainy season (mid-October through early May).

- The project design team will incorporate decorative architectural features, such as plantings or decorative bricks, into the headwall design at the Greer Road, Louis Road, and Waverley Street bridge crossings.

~~The District has investigated other means to reduce impacts and concluded that no other mitigation is available.~~

Conclusion: **Implementation of the proposed mitigation will reduce significant visual and aesthetic impacts to a less than significant level. (Less Than Significant Impact with Mitigation)**

Page 102 Section II. I.: Construction-Related Impacts, Temporary Traffic and Circulation Impacts.

Haul trucks will be arriving and leaving throughout the day, and will not create a substantial change in peak hour levels of service. Construction workers will not be working on this site in large enough numbers or for long enough periods to cause significant increase in traffic congestion. However, the route on Louis Road does pass close to Ohlone Elementary School located just off the corner of Louis Road and Amarillo Avenue, which could cause conflicts between trucks and school children or other pedestrians. This increased hazard would be a significant impact.

Page 104 Section II. I.: Construction-Related Impacts, Temporary Noise Impacts.

TABLE ~~6~~ 7
TYPICAL NOISE LEVELS OF CONSTRUCTION EQUIPMENT

Equipment	Noise Levels at 25 Feet (decibels)
Backhoes/Gradeall	78-99
Loaders	78-90
Dump Trucks	89-100
Cement Trucks	89-100
Chain Saws	90-100
Pavement Breakers	82-92
Jackhammers	88-103
Pile Drivers	100-110

Page 114 Section III: Alternatives to the Proposed Project

~~The analysis in this EIR concludes that implementation of the proposed project would result in significant, unavoidable visual impacts. Existing floodwalls could be raised 3-4 feet, which would exceed the height of some~~

~~backyard fences adjacent to the creek. In addition, headwall heights at on the Greer Road and Louis Road Bridges would need to be raised 3-4 feet, which would make the walls more visually obstructive than they are currently. The development of the proposed floodwalls and headwalls next to the bridge crossings would block existing views of the creek channel and create a significant visual impact.~~

The proposed project has ~~also~~ resulted in several ~~other~~ significant impacts that can be mitigated. The visual and aesthetic impacts of the proposed headwall heights across several bridges can be mitigated by the proposed measures provided in Section II-H. Two additional impacts, ~~of~~ which will require substantial mitigation to reach a less than significant level, are mitigation for the proposed bypass and construction in an area of contaminated soil or groundwater. The proposed bypass channel would result in the loss of wetland and riparian habitat. There is not enough land available to mitigate for the impact on-site. Therefore, a substantial amount of off-site mitigation will be required to reduce this impact to a less than significant level.

Page 115 Section III: Alternatives to the Proposed Project, Visual Impact Alternatives, Off-Stream Storage Alternative

The Off-Stream Storage Alternative could reduce aesthetic impacts compared to the proposed project, and it meets the basic objectives of the project. However, this alternative would impact biological resources in the upstream reach of the project site. Specifically, the site is known to have red-legged frog habitat and to be occupied by red-legged frogs. The loss of habitat or individuals would result in a significant impact. Because the project would have significant additional environmental impacts this alternative is not environmentally superior to the proposed project. Furthermore, as stated in the Engineer's Report on page ~~5-8~~ 5-12, the total cost of this alternative is estimated to be ~~$80,000,000~~ $40,000,000 compared to $6,000,000 for the proposed project.

Page 116 Section III: Alternatives to the Proposed Project, Visual Impact Alternatives, Channel Modification Alternative

Construction of this alternative would take place within the concrete-lined portion of the existing creek channel. Environmental impacts associated with the U-frame channel, increasing floodwall/headwall heights, and the raising of Louis Road Bridge would duplicate the impacts discussed for the proposed project. In particular, the visual impact of floodwall/headwall improvements would be similar to the proposed project ~~between~~ at the Greer Road and ~~Ross~~ Louis Road bridge crossings.

Page 122 Section IV Significant Unavoidable Impacts of the Project

~~The project would result in significant unavoidable visual and aesthetic impacts due to the construction of the floodwalls, at heights up to 6.7 feet above the existing sidewalk at the upstream face of Greer Road.~~ All ~~other~~ potentially significant impacts of the project would be reduced to a less than significant level with the implementation of the mitigation measures identified in this EIR.

Page 126 Section VIII: - Glossary

Bridge Pressurization – This occurs when the water surface in a stream channel rises so that it makes contact with the underside of a bridge crossing. In such circumstances, the flow characteristics are more reflective of closed pipe (or pressurized) flow than open channel flow, which has a free water surface.

Appendix A Biological Resources Section

Indirect and Direct Losses of Riparian Habitat

A total of 0.78 ~~0.97~~ acres of willow riparian habitat will be impacted by the project. The project will result in approximately 0.68 ~~0.78~~ acres of direct impacts to willow riparian habitat ~~within CDFG jurisdictional habitat~~. Construction impacts will remove an additional 0.10 ~~0.19~~ acres of riparian habitat ~~within CDFG jurisdiction~~. All willow riparian habitat that will be impacted by the sediment basin and bypass channel will be mitigated with ~~at a ratio of 3:1. This results in a mitigation requirement of 2.91~~ 2.34 acres of riparian habitat.

FINAL ENVIRONMENTAL IMPACT REPORT

DOCUMENT

SECTION V
SUMMARY

This document includes a number of technical terms with which members of the public may not be familiar. Because of this, a glossary is provided in Section XIII beginning on page 132 of this EIR.

PROJECT DESCRIPTION

Objectives

The objectives of the proposed Matadero Creek Remediation Project are to:

1. increase flood capacity to achieve the District's and FEMA's one percent (100-year) flood design flow level of protection with adequate freeboard along Matadero and Barron Creeks,
2. provide equivalent levels of flood protection throughout the project area,
3. protect existing sensitive habitat within the Matadero Creek watershed,
4. provide for efficient and cost-effective flood control maintenance,
5. obtain a letter of map revision from FEMA to remove the existing flood prone areas due to riverine flooding from the Flood Insurance Rate Map, and
6. reduce the risk of flooding from Matadero and Barron Creeks in the tidal inundation zone between Middlefield Road and the San Francisco Bay.

Project Description

The project site encompasses approximately 3.5 miles of Matadero and Barron Creeks from the Palo Alto Flood Basin (PAFB) upstream to Foothill Expressway in the City of Palo Alto (City).

The engineering analysis determined that a combination of flood control components would be required to provide the desired flood protection to Matadero and Barron Creeks. Based on this analysis, the proposed project consists of improvements downstream of Highway 101, as well as upstream of Highway 101 between the freeway and Alma Street.

The downstream segment of the proposed project, between Highway 101 and the PAFB, includes the construction of a bypass channel consisting of a gravity retaining wall system and a hard bottom. The gravity retaining wall system is comprised of interlocking blocks that create pockets within the wall system, which are available to be planted with vegetation. The bypass channel will be located along the edge of the City of Palo Alto Municipal Services Center/Corporation Yard (MSC) and will be sized to convey approximately 1,400 cubic feet per second (cfs) during a one percent flood event. This bypass channel would be approximately 60 feet wide, with an additional 10 feet on each side for a construction buffer, and would be constructed within the District's easement along the north and southeast boundaries of the MSC. The proposed bypass channel would originate just northeast of

East Bayshore Road with a sediment basin, which would convey flood flows into the bypass channel. The bypass channel would travel along the fence line, just north of the MSC, before turning to the southeast and outfalling into the PAFB.

The levee area between the proposed bypass channel and the PAFB would be planted for riparian and wetland habitat mitigation. Construction of the proposed bypass channel will take approximately 12-18 months to complete, depending on biological constraints.

Upstream of Highway 101, the project proposes to replace and raise the Louis Road Bridge. The new bridge will be on the same alignment and structural footprint as the existing structure. The bridge will be raised approximately 1 foot, and as a result, roadway approaches will have to be raised and repaved on both sides of the bridge. The trapezoidal channel under the Louis Road Bridge will be replaced with a U-frame channel to improve conveyance capacity. An approximately 40-foot long channel transition (from trapezoidal to U-frame) would be included upstream of Louis Road, and an approximately 20-foot long channel transition would be built downstream. The transition lengths are in addition to the 65-foot length of U-frame channel under the bridge. In addition, floodwalls and headwalls between Highway 101 and Alma Street will be raised as necessary along the creek channel and at various bridge crossings to meet the FEMA criteria for one percent flood protection.

AREAS OF KNOWN CONTROVERSY

Local residents are concerned about the loss of aesthetic value in the area because of the proposed floodwalls and headwalls. At one bridge crossing, the new headwall will be 5 feet above sidewalk level. In addition, the residents are concerned about the potential for flooding in the general vicinity of Matadero Creek.

IMPACTS AND MITIGATION

The following table summarizes the significant impacts associated with the proposed project and mitigation measures recommended by qualified consultants.

Table I

Resource	Impact	Mitigation	Level of Impact
Land Use	Construction activities could result in significant physical disturbance, and could cause temporary disruption to the adjacent land uses.	The District would implement a Construction Management Plan to minimize impacts on the surrounding land uses, particularly the residences, to the fullest extent possible. The Construction Management Plan would include the following measures: • notification and communication with neighborhood regarding construction activities, • BMPs to control dust, noise, and water pollution impacts	Less than Significant with Mitigation
Geology and Soils	The project is located in an area of expansive soils and potentially unstable channel slopes.	1. Geotechnical investigations conducted to date have identified sufficient site and soil characteristics to support a specific project design that will reduce potential hazards. 2. Slabs on grade would have sufficient reinforcement and be supported on a layer of non-expansive fill. Foundations of proposed improvements would also be placed below the depth of seasonal moisture fluctuation. 3. All new bridges, bypass and channel structures would be constructed in accordance with appropriate bridge design building code standards to withstand seismic shaking.	Less than Significant with Mitigation
Vegetation and Wildlife	The project could result in the loss of wetland habitat.	The project will create 0.20 acres of new wetland habitat on the project site to replace the impacted wetlands at a 2:1 ratio.	Less than Significant with Mitigation
Vegetation and Wildlife	The project could result in the loss of riparian habitat.	The project will create 2.34 acres of new riparian habitat both on and off site to replace impacted CDFG Jurisdictional willow riparian habitat at a 3:1 ratio.	Less than Significant with Mitigation
Vegetation and Wildlife	The project could impact any Steelhead Rainbow Trout and Fall-run Chinook salmon occupying the project site.	1. Construction will be limited to the dry season. 2. Measures will be taken to ensure that water quality is not impacted during construction. 3. Measures will be taken to ensure that all species will have unimpeded access to the creek both upstream and downstream of the construction area.	Less than Significant with Mitigation

Vegetation and Wildlife	The project could impact any individual California red-legged frogs occupying the project site.	1. A survey for the species within the immediate impact site would be conducted immediately before construction begins. 2. If frogs are not found on site during pre-construction surveys, all vegetation within the impact area will be completely removed prior to construction. 3. If frogs are found on site during pre-construction surveys, the District will establish a buffer zone or mover the frog(s) in conformance with USFWS permit requirements.	Less than Significant with Mitigation
Vegetation and Wildlife	The project could impact nesting raptors.	1. Construction would be scheduled to avoid the nesting season. 2. Pre-construction surveys will be conducted by a qualified ornithologist to ensure that no active raptor nests would be disturbed during project construction.	Less than Significant with Mitigation
Vegetation and Wildlife	The project site could impact any Burrowing Owls occupying the site.	1. Pre-construction surveys would be conducted by a qualified ornithologist prior to any soil altering activities. 2. If Burrowing Owls are present and avoidance is not feasible, the Owls will be evicted with the authorization of the CDFG.	Less than Significant with Mitigation
Vegetation and Wildlife	The project could impact nesting waterbirds during project construction.	1. Construction will take place outside of the breeding season when feasible. 2. Pre-construction surveys would be conducted by a qualified ornithologist no more than 15 days prior to construction. If nesting waterbirds are found, a construction buffer around the active nest will be established.	Less than Significant with Mitigation
Vegetation and Wildlife	The project could impact nesting swallows during project construction.	1. Construction will take place outside the breeding season when feasible. 2. Pre-construction surveys will be conducted prior to construction. 3. Old nests in the construction area will be removed before the swallow colony returns to the nesting site. 4. If necessary, a permit will be obtained from the USFWS to remove or destroy nests. Any eggs removed from the nests will require incubation by an approved wildlife rescue group.	Less than Significant with Mitigation
Vegetation and Wildlife	The project could impact nesting salt marsh Common Yellowthroats and Alameda Song Sparrows.	1. Construction will take place outside the breeding season when feasible. 2. Pre-construction surveys would be conducted by a qualified ornithologist no more than 15 days prior to construction. If Common Yellowthroat or Song Sparrow nests are found, a construction buffer around the active nest will be established.	Less than Significant with Mitigation
Vegetation and Wildlife	The project could impact salt marsh harvest mice and salt marsh wandering shrews.	1. Within 10 days prior to initiation of construction, all pickleweed in the construction area will be removed by hand. 2. Remaining pickleweed habitat will be avoided during construction and a qualified biologist will be on hand to monitor the area and rescue any small mammals found in the area during construction. 3. All impacted pickleweed habitat will be replanted immediately following construction.	Less than Significant with Mitigation
Water Quality	Construction of the proposed project could impact the water quality of Matadero Creek.	1. Construction in the channel would only occur in periods of low creek flows. 2. A Stormwater Pollution Prevention Plan will be implemented. 3. Erosion controls methods will be used, as appropriate, during construction to	Less than Significant with Mitigation

		control sediment. 4. After construction, the District will stabilize and/or revegetate the disturbed areas of the creek channel.	
Hazardous Materials	Construction of the proposed project could expose construction workers and nearby land uses to significant risk if breaks occur in electric transmission lines and/or sanitary sewer lines in the creek channel.	1. The exact location of electric transmission lines and sanitary sewer lines in the project area will be identified prior to construction. 2. Buffers will be established around all transmission and sewer lines prior to construction and will be in effect until construction is complete. 3. Breaks in unidentified utility lines will be repaired immediately by the responsible party.	Less than Significant with Mitigation
Hazardous Materials	Contaminated soil and groundwater within and adjacent to the upstream channel could be encountered during project construction and released into the creek channel or PAFB.	1. Prior to construction, the extent of the soil and groundwater contamination will be determined. A Health and Safety Plan and a Soil Management Plan shall be prepared that will identify protocols for working in contaminated areas. 2. Any contaminated soil or groundwater encountered during construction would be disposed of in accordance with all applicable regulations and requirements. 3. Regardless of the level of hazardous materials contamination within the project area, the type and scope of mitigation will be the same for removal and disposal of the contaminated soil and groundwater.	Less than Significant with Mitigation
Hazardous Materials	Petroleum-impacted soil and/or groundwater within and adjacent to the proposed bypass channel area could be encountered during project construction and released into the creek channel or PAFB.	1. Prior to construction, the extent of the soil and groundwater contamination will be evaluated. A Health and Safety Plan and a Soil Management Plan shall be prepared that will identify protocols for working in potentially contaminated areas. 2. Any contaminated soil or groundwater encountered during construction would be disposed of in accordance with all applicable regulations and requirements. 3. Regardless of the level of hazardous materials contamination within the project area, the type and scope of mitigation will be the same for removal and disposal of the contaminated soil and groundwater.	Less than Significant with Mitigation
Visual and Aesthetics	The proposed increase in floodwall and headwall heights would result in a visual impact.	These mitigations will be incorporated into the project to reduce the visual impacts: 1. Temporary flood barriers will be installed for part of the year along maintenance access ramps at the Greer and Louis Road bridge crossings. 2. Sidewalks will be reconfigured (raised) at the Greer and Louis Road bridge crossings. 3. The project design team will incorporate decorative architectural elements into the headwall designs at the Greer Road, Louis Road, and Waverley Street bridges.	Less than Significant with Mitigation
Construction	Construction work associated with the Louis Road bridge could result in short -term traffic and circulation impacts.	1. The number of crossing guards located along Louis Road, in the vicinity of Ohlone Elementary School, will be increased during construction. 2. A detour plan will be implemented in coordination with the City of Palo Alto.	Less than Significant with Mitigation

Construction	Construction of the proposed project could result in temporary noise levels significantly higher than existing levels.	1. Construction activities will be conducted in accordance with all City Noise Ordinances. 2. The contractor will be required to use "new technology" power construction equipment with state-of-the-art noise shielding and muffling devices. All internal combustion engines used on the project site would be equipped with adequate mufflers and properly maintained.	Less than Significant with Mitigation
Utilities	The project could interfere with utility lines during construction of the U-frame channel near Louis Road.	1. The exact location of utilities will be identified prior to construction. 2. Buffers will be established around all utilities. 3. All underground utilities will be protected and/or relocated during project construction as necessary. Any damage to these utilities will be repaired and/or replaced by the District.	Less than Significant with Mitigation

Alternatives to the Proposed Project

The EIR discusses alternatives that would reduce visual, biological, and hazardous materials impacts. The EIR also discusses a no project alternative in conformance with CEQA. An environmentally superior alternative is identified.

Cumulative Impacts

The proposed project was not found to result in cumulatively considerable impacts when considered in combination with past, current, and probable future projects.

ALTERNATIVES

The planning study process included a comprehensive evaluation of the entire hydrologic/hydraulic system of Matadero and Barron Creeks. From this analysis, it was recognized that some combination of flood control measures, both upstream and downstream, would be required to meet the flood protection objectives of the project. Various possible project components were identified and evaluated as part of the planning study. Those alternatives that might reasonably be assumed to reduce project environmental impacts and which are therefore evaluated in this EIR, are listed below.

Underground Bypass Alternative

To minimize intrusion into the creek channel and meet the flood control requirements of the project, this alternative could include a 40-foot wide, 8-foot high box culvert under East Bayshore Road. A sediment basin would be excavated just downstream of the pedestrian/bicycle bridge to minimize sediment accumulation in the box culvert itself. Flood flows would be diverted into the box culvert via an inlet structure and would discharge into the PAFB just south of the MSC property.

The culvert would need to span the entire East Bayshore road right-of-way and would require substantial utility relocation and elevating the roadway to at least 6 feet NGVD (the road is presently built at 4-5 feet NGVD). This alternative would also require modifications to the main entrance road to the MSC and other driveways along the alignment in order to provide safe vehicular access. Impacts associated with this alternative would be the temporary closure of East Bayshore Road, access problems to property fronting East Bayshore Road during construction, and the temporary disruption of utility services in the area. However, this alternative significantly reduces potential environmental impacts associated with biological resources and exposure of hazardous materials, compared to the proposed project. The proposed project includes mitigation to reduce Biological and Hazardous Materials impacts to a less than significant level.

Channel Modification Alternative

The purpose of this alternative would be to reduce the visual impact associated with the increased floodwall and headwall heights along the upstream reach of Matadero Creek. This alternative could construct a 36-foot wide U-frame concrete channel to replace the existing concrete trapezoidal channel from Greer Road Bridge to Alma Street. A low-flow fish channel could be included, as could reconstruction of the existing maintenance access ramps. Floodwalls could be added as necessary to provide freeboard and the Louis Road Bridge could be replaced and raised as discussed in the proposed project.

Replacing the existing trapezoidal channel with a U-frame channel would increase flood flow capacity within the creek channel. As a result, floodwalls would no longer be required upstream of Ross Road, so the overall visual impact would be reduced but it would not be reduced to less than significant. However, environmental impacts associated with the U-frame channel, increasing floodwall/headwall heights downstream of Ross Road, and the raising of Louis Road Bridge would duplicate the impacts discussed for the proposed project.

Off-Stream Storage Alternative

The purpose of this alternative is to reduce the amount of flood flows conveyed through Matadero Creek and thus reduce the scope of channel remediation. This alternative could include a 130 acre-foot flood storage basin on a 20-acre site near the intersection of Foothill Expressway and Page Mill Road on Stanford University land. During high flow events, water from Matadero Creek would overflow through a spillway structure into a holding pond for detention and eventual release back into Matadero Creek.

Construction of this alternative would eliminate the need for floodwall improvements upstream of Ross Road and would reduce the floodwall and headwall height needed at Louis Road and Greer Road. However, due to the location of the off-site storage basin, implementation of this alternative could impact riparian habitat and red-legged frog populations. Furthermore, as stated in the Engineers Report, the total cost of this alternative is estimated to be $40,000,000 compared to $6,000,000 for the proposed project.

Channel Restoration circa 1971 Alternative

To restore design water surface elevations at Bayshore Freeway to their original design level, the downstream channel could be returned to its 1971 condition by removing established sediment and vegetation. Approximately 20,000 cubic yards of material would need to be removed to meet flood capacity requirements.

This alternative would result in the loss of all of the vegetation in the entire existing riparian corridor along the southern overbank area of Matadero Creek below Bayshore Freeway. Approximately 3.4 acres of potential CDFG jurisdictional habitat and approximately 0.66 acres of potential US Army Corps of Engineers jurisdictional habitat would be impacted as well as several special-status wildlife species, including the salt marsh harvest mouse and the federally listed steelhead rainbow trout. A total of 11.5 acres of land would be required for riparian and wetland mitigation, the majority of which would be offsite. At the present time only approximately 2.3 acres of off-site mitigation area have been identified. In addition, rigorous and frequent maintenance above and beyond current maintenance procedures would be required to maintain the channel capacity.

Restoration of the creek channel would not require the project to utilize contaminated land adjacent to the MSC property. As a result, this alternative avoids the mitigation required by the proposed project (this impact is reduced to less than significant with mitigation in the proposed project). However, this alternative creates a more significant biological impact than the proposed project. In addition, currently identified mitigation sites would not be adequate for the mitigation needs of this alternative[1]. Therefore, this alternative is considered infeasible.

Expanded Floodway Alternative

To restore flood flow conveyance downstream of Highway 101, a 50-foot wide floodway could be created alongside the existing creek channel. The floodway would need to begin just downstream of the bicycle/pedestrian bridge adjacent to East Bayshore Road and extend approximately 1,600 feet toward the PAFB. A maintenance access road could be built east of the MSC where the existing levee is located. Any stands of Giant Reed would be completely removed. Because of the maintenance required, the bottom of the floodway would need to be covered with a hard maintenance floor.

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[1] The Engineer's Report discusses off-site mitigation areas that are not analyzed in this report. Specifically, land in the general vicinity of the project site that is owned by Stanford University. This area was not taken into account for this analysis because the District is not in any agreement with Stanford University to purchase or lease the land in perpetuity. Therefore, there is no guarantee of acquiring the land and it cannot be considered a viable mitigation site at this time.

This alternative would result in the loss of approximately 3.16 acres of potential CDFG jurisdictional habitat. This alternative would also impact approximately 0.40 acres of potential US Army Corps of Engineers jurisdictional habitat consisting of high quality wetlands. A total of 10 acres of land would be required for riparian and wetland mitigation, the majority of which would have to be found offsite. Taking into account identified on-site and off-site mitigation areas, this alternative would have a net deficit of more than 5.0 acres. In order to meet flood capacity requirements, the floodway and the creek channel would require vigorous ongoing maintenance.

Expanding the existing floodway would not require the project to utilize contaminated land adjacent to the MSC property. As a result, this alternative avoids the mitigation required by the proposed project (this impact is reduced to less than significant with mitigation in the proposed project). However, analysis shows that this alternative creates a more significant biological impact than the proposed project. In addition, currently identified mitigation sites would not be adequate for the alternative's mitigation needs[2]. Therefore, this alternative is considered infeasible.

No Project Alternative

The No Project Alternative would be to leave Matadero Creek and the Louis Road Bridge as they are. The District would continue its current operations and maintenance procedures along Matadero and Barron Creeks from Highway 101 to Foothill Expressway. This alternative avoids all the impacts of the proposed project. However, Matadero and Barron Creeks would not be able to adequately convey a 100-year flood flow.

Environmentally Superior Alternative

The environmentally superior alternative for the downstream reach is the underground bypass channel. This alternative significantly reduces the impact to biological resources and would allow for all mitigation plantings to be done on site. Furthermore, this alternative avoids the contaminated soil located on and adjacent to the MSC property. However, the underground bypass channel would create significant traffic and circulation impacts for the properties adjacent to East Bayshore Road. In addition, as stated in the Engineers Report on page 6-24, the total cost of this alternative is estimated to be $15,000,000 compared to $8,000,000 for the proposed project.

The environmentally superior alternative for the upstream reach is the U-frame channel modification from the Greer Road Bridge to Alma Street. This alternative somewhat reduces the significant, unavoidable visual impact that would result from the increase in floodwall and headwall heights along Matadero Creek. The channel work could impact existing ruderal, aquatic, and developed habitat, as well as nesting swallows. However, these impacts would also occur with the proposed project. Therefore, this alternative is considered superior because it does not create any new significant impacts beyond what is created by the proposed project, and it reduces the visual impacts caused by the proposed project. However, as stated in the Engineers Report on page 6-55, the total cost of this alternative is estimated to be $30,000,000 compared to $6,000,000 for the proposed project.

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[2] Please see footnote No. 1.

SECTION VI
DESCRIPTION OF THE PROJECT

A. BACKGROUND OVERVIEW

In July of 1996, the Santa Clara Valley Water District (District) completed a series of flood control improvements on Matadero and Barron Creeks. A high flow underground diversion from the Barron Creek sediment basin to Matadero Creek was installed at the new bypass location. This facility was designed to divert sufficient flows so that the Barron Creek channel can adequately convey a one percent (100-year) flood flow[1]. In addition, improvements made to Matadero Creek increased flood protection, but did not achieve the design objectives of adequately conveying the 100-year flood flows. Because Matadero Creek cannot convey a 100-year flood flow, Barron Creek is still at risk of flooding. Furthermore, analyses made during the preparation of a Letter of Map Revision (LOMR) request to the Federal Emergency Management Agency (FEMA), as well as a storm event in early February 1998 underscored the need for additional flood protection.

In the spring of 1998 the District decided to undertake a long-term remediation project to bring Matadero Creek's flood protection to FEMA national standards. The engineering planning study for this work began in March 1999. The scope of work developed for the planning study included a comprehensive evaluation of the entire hydrologic/hydraulic system for Matadero Creek. An analysis of the Palo Alto Flood Basin (PAFB) was conducted as part of this scope of work, to update studies conducted over 20 years ago and to incorporate the PAFB's present-day physical and operational characteristics into the evaluation of channel hydraulics in the lower reaches of Matadero Creek.

While a Final Initial Study/Negative Declaration (IS/ND) was completed for the previous flood control work on Matadero Creek, that IS/ND is considered to be outdated for two reasons: 1) the existing setting information has changed over the last 12 years; and 2) the project description has become more complex, involving work in areas not anticipated previously. For these reasons, the approach for the environmental review conducted for in the 1988 IS/ND is no longer appropriate for this project, and therefore, this EIR has been prepared to more accurately assess the environmental impacts of the proposed flood control project.

The policy of the District is to design flood control improvements to contain the one-percent flood[2] with appropriate freeboard. The Matadero Creek channel currently does not have adequate capacity to convey the one-percent flood. As such, Barron Creek is still at risk of a 100-year flood. The District proposes the development of additional flood control improvements along the portion of Matadero Creek stretching from El Camino Real to downstream of Highway 101 in Palo Alto.

The District estimates that riverine flooding during a one-percent event would cause average annual flood damage of approximately $1.9 million.

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[1] Santa Clara Valley Water District 1988.

[2] The one-percent flood, also referred to as the 100-year flood, has a one percent statistical probability of occurring in any year, or a return period of 100 years. The occurrence of a one percent flood event in any year does not change the probability of a one percent flood occurring in succeeding years. The one percent flood event is the standard set by the Federal Emergency Management Agency (FEMA), which is responsible for administration of the National Flood Insurance Program. The District has adopted the one percent level as its design standard.

B. PROJECT LOCATION

Matadero Creek is located in the City of Palo Alto, south of San Francisco, and drains into the Palo Alto Flood Basin (PAFB), which then drains into San Francisco Bay. The project site includes approximately 1.5 miles of Matadero Creek between the PAFB and Alma Street. A regional map of the project area is shown on Figure 1. The site vicinity and the affected portion of Matadero Creek are shown on Figure 2.

C. PROJECT OBJECTIVES

The objectives of the proposed Matadero Creek Remediation Project are to:

1. increase flood capacity to achieve the District's and FEMA's one percent (100-year) flood design flow level of protection with adequate freeboard along Matadero and Barron Creeks,

2. provide equivalent levels of flood protection throughout the project area,

3. protect existing sensitive habitat within the Matadero Creek watershed,

4. provide for efficient and cost-effective flood control maintenance,

5. obtain a letter of map revision from FEMA to remove the existing flood prone areas due to riverine flooding from the Flood Insurance Rate Map, and

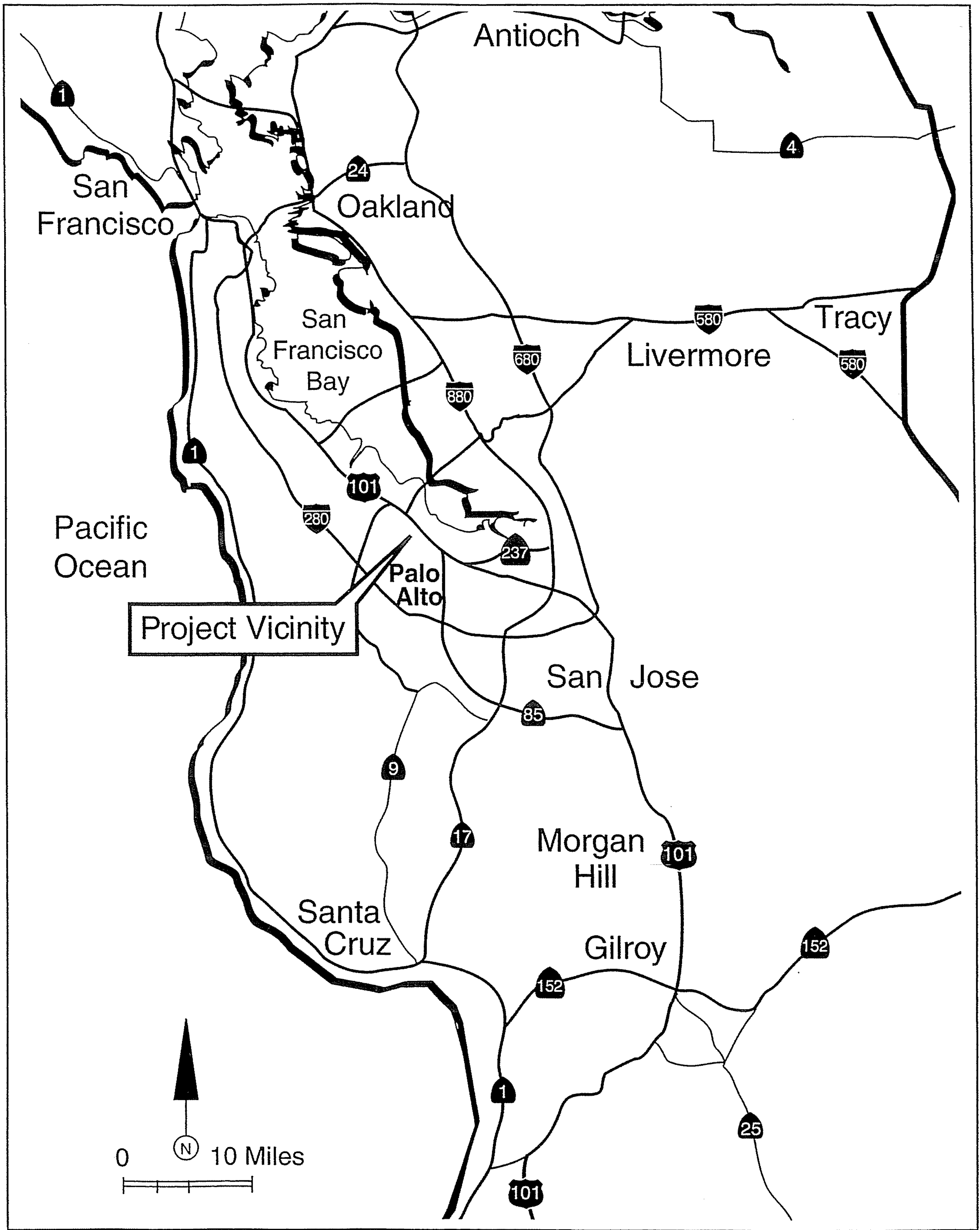
6. reduce the risk of flooding from Matadero and Barron Creeks in the tidal inundation zone between Ross Road and the San Francisco Bay.

In conformance with CEQA, the minimization of environmental impacts served as a basic design guideline in developing a project to meet the project objectives.

D. DETAILED DESCRIPTION OF THE PROPOSED PROJECT

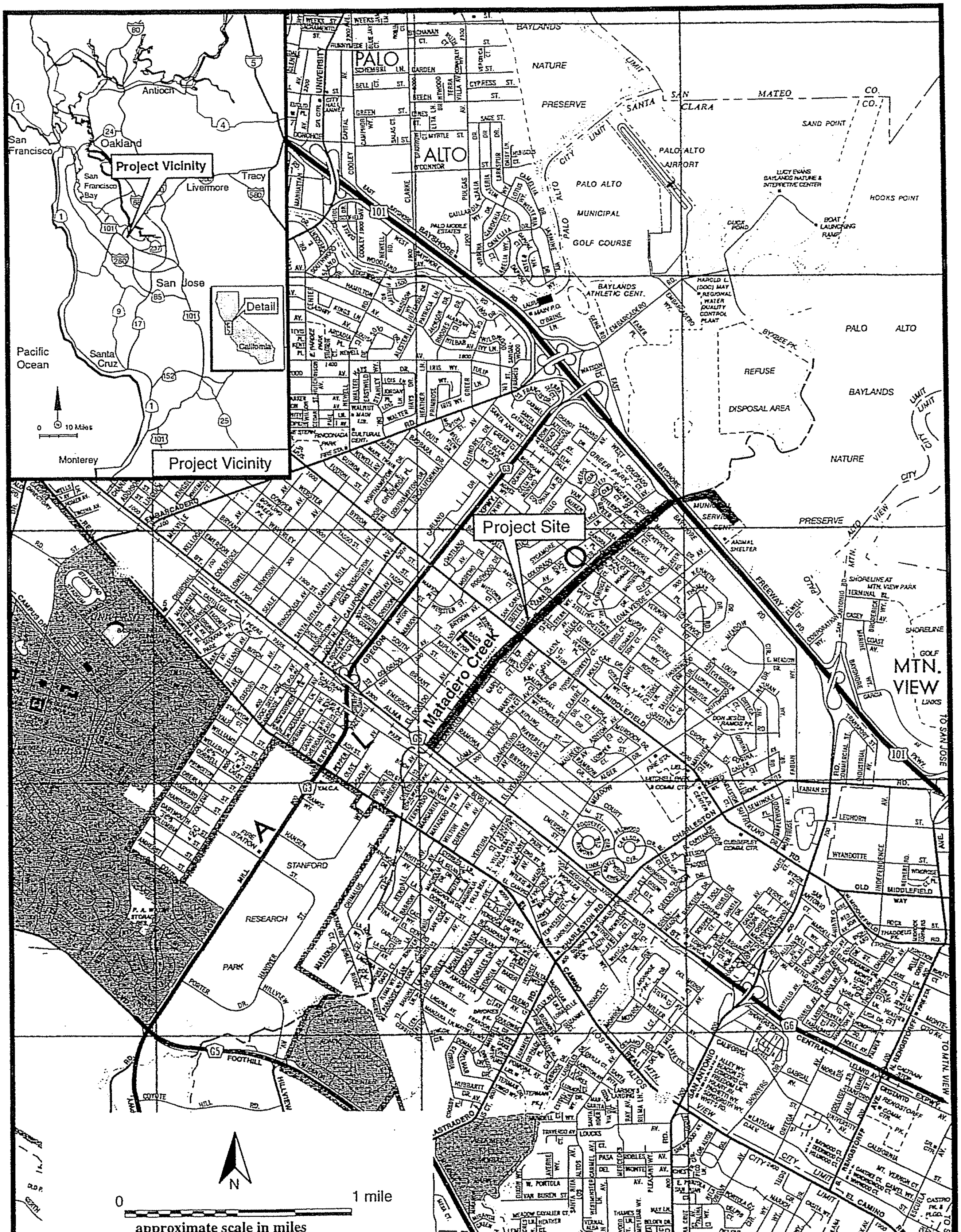
The proposed project addressed in this EIR is a complex set of actions designed to meet the previously identified objectives, as well as to promote the District's policies for generally protecting the area's creeks and waterways. In addition to describing the mitigation required by CEQA and proposed by the project, there is a discussion of possible environmental enhancements. This project description also includes a discussion of the future maintenance program that would be necessary to maintain the proposed improvements at the level of efficiency for which they are designed.

The engineering analysis has determined that additional flood protection improvements are required on Matadero Creek, both upstream and downstream of Highway 101, and that a combination of flood control components will be required to provide the desired level of flood protection. Several project alternatives, consisting of various combinations of flood control elements, were evaluated as part of the planning study for this project (refer to **Section VIII., Alternatives to the Proposed Project**, of this EIR). Based upon the hydrologic/hydraulic system of Matadero and Barron Creeks and the evaluation of project alternatives, the proposed project evaluated in this EIR consists of improvements downstream of Highway 101, as well as upstream of Highway 101, between the freeway and Alma Street, on Matadero Creek (see Figure 2).



REGIONAL MAP

FIGURE 1



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VICINITY MAP

FIGURE 2

Downstream of Highway 101

The proposed flood control measures for the reach of Matadero Creek downstream of Highway 101 are designed to decrease backwater pressure by improving conveyance of storm flows to the PAFB. The proposed project includes the construction of an overflow bypass channel consisting of a vegetated gravity retaining wall system and a hard bottom. The gravity retaining wall system is comprised of interlocking blocks that are available in various colors such as Earthstone, Keystone, or textures such as geo-webbing. Pockets within the wall system can accommodate vegetation. The bypass channel will be located along the edge of the City of Palo Alto Municipal Services Center/Corporation Yard (MSC), and will convey approximately 1,400 cubic feet of water per second (cfs) during a one percent flood event. This bypass channel would be approximately 60 feet wide, with an additional 10 feet on each side for a construction buffer. This bypass will require a 0.16 acre right-of-way acquisition from the City of Palo Alto. The proposed overflow bypass channel would originate just northeast of East Bayshore Road, beginning with a sediment basin, which would convey flood flows into the bypass channel. The bypass channel would travel along the fence line, just north of the MSC, then would curve towards the southeast through the corner of the MSC, and continue southeast along the MSC border before and outfalling into the PAFB (see Figures 3 and 4). A proposed floodwall on the south side of the bypass will provide a measure of flood protection to the MSC.

The levee area between the proposed overflow bypass channel and the PAFB would be used for riparian and wetland mitigation (refer to **Section VII. D., Vegetation and Wildlife**, of this EIR). This area would be excavated to an elevation of 0.0 feet to -1.0 feet, and planted with appropriate riparian and wetland vegetation to blend with the existing stands of willow and other native plants. Construction of the proposed bypass channel will take approximately 6-12 months to complete, depending on biological constraints.

Upstream of Highway 101

Upstream of Highway 101, the project proposes to replace and raise the Louis Road Bridge; modify the trapezoidal channel just upstream and downstream of Louis Road with a U-frame channel to improve conveyance capacity; and raise floodwalls and headwalls as necessary along the creek channel and at various bridge crossings to meet the FEMA criteria for one percent flood protection. Each of these project components is described below.

Replace Louis Road Bridge

Structural investigations conducted as part of the engineering analysis determined that the existing Louis Road bridge is not structurally able to withstand peak flood flows and could suffer significant damage from excessive uplift forces caused by pressure flows and subsequent high water levels at the bridge headwalls (refer to the Engineer's Report). For these reasons, the project proposes replacing and raising the Louis Road Bridge. The project does not propose raising any other bridge crossings. However, all bridges will be re-evaluated during the design phase. If it is determined that additional bridges will need to be modified, subsequent CEQA review would be required.

The existing Louis Road Bridge structure would be replaced in kind with a new prestressed concrete slab bridge. The replacement of the Louis Road Bridge is proposed on the same alignment and structural footprint as the existing structure, which would allow for reuse of the existing driven piles. The bridge elevation would be raised by approximately one foot. This would require raising and repaving the roadway approaches on both sides of the bridge to provide adequate site distances.

Because of the height of one percent flood flows in this area, the new bridge structure would be designed for strength and stability under pressurized flows. A cross-section of the proposed Louis Road Bridge structure is shown on Figure 5.

The replacement of the Louis Road Bridge structure would require complete temporary road closures and traffic detours, as well as protection and temporary relocation of utility lines within the roadway (refer to **Section VII, I., Construction-Related Impacts**, and **Section VII. J., Utilities and Services**, of this EIR). The proposed bridge replacement is anticipated to require 6-9 months to complete.

Modify Channel Upstream and Downstream of Louis Road

The existing Matadero Creek channel is trapezoidal in shape from Alma Street downstream to Highway 101. The project proposes to modify the channel to a U-frame channel in the vicinity of Louis Road. The modification would extend approximately 65 feet under the Louis Road Bridge. An approximately 40-foot long channel transition (from trapezoidal to U-frame) would be included upstream of Louis Road, and an approximately 20-foot long channel transition would be built downstream. The transition lengths are in addition to the 65-foot length of U-frame channel under the bridge. Modifying the channel from a trapezoidal cross-section to a U-frame section would increase the flow area and channel capacity, and thus would lower the water surface elevation during peak flows. This would reduce the floodwall height requirements in this area. A cross-section of the proposed U-frame channel near Louis Road is shown on Figure 6.

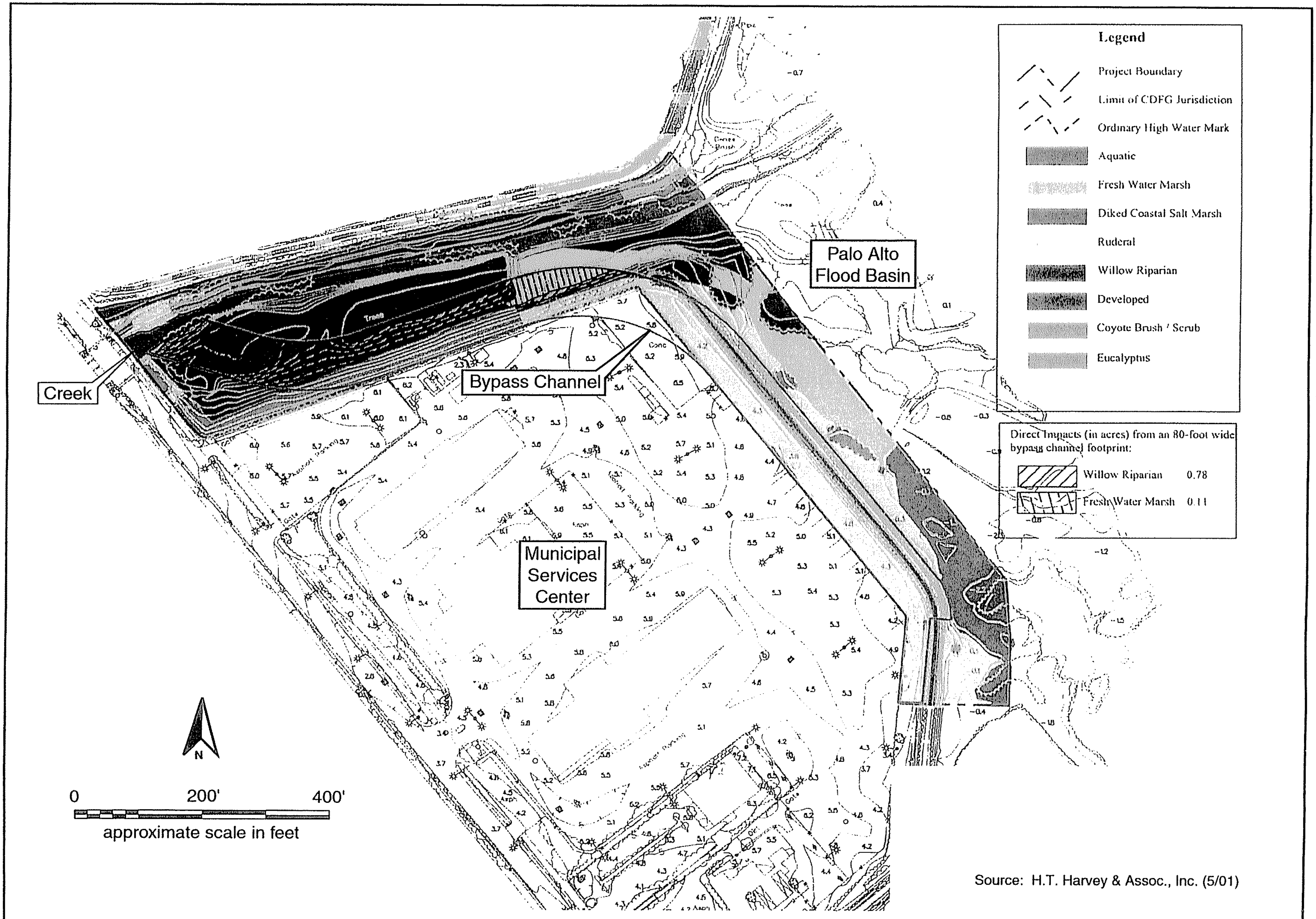
The construction of the U-frame channel modifications in this area would also include the replacement of any existing floodwalls impacted by the construction. The proposed U-frame channel modification is anticipated to require approximately three months to complete and will occur concurrently with the reconstruction of the bridge.

Raise Floodwalls and Headwalls

The proposed project includes raising the floodwalls along the creek channel banks and the headwalls at some bridge crossings to meet FEMA design standards. FEMA requires that four feet of freeboard be provided at the bridge crossings and 100 feet upstream and downstream of these crossings, and FEMA requires three feet of freeboard at all other locations.

There are approximately 14,500 linear feet of existing floodwalls along Matadero Creek between the existing Highway 101 bridge structures and the existing Alma Street box culvert. Based upon the hydraulic analysis completed for the project, approximately 13,700 linear feet (90 percent) of the floodwalls in the project area need to be raised to meet the FEMA freeboard requirements. Along the creek channel, the existing floodwalls must be raised between one and two feet in order to meet the freeboard required by FEMA.

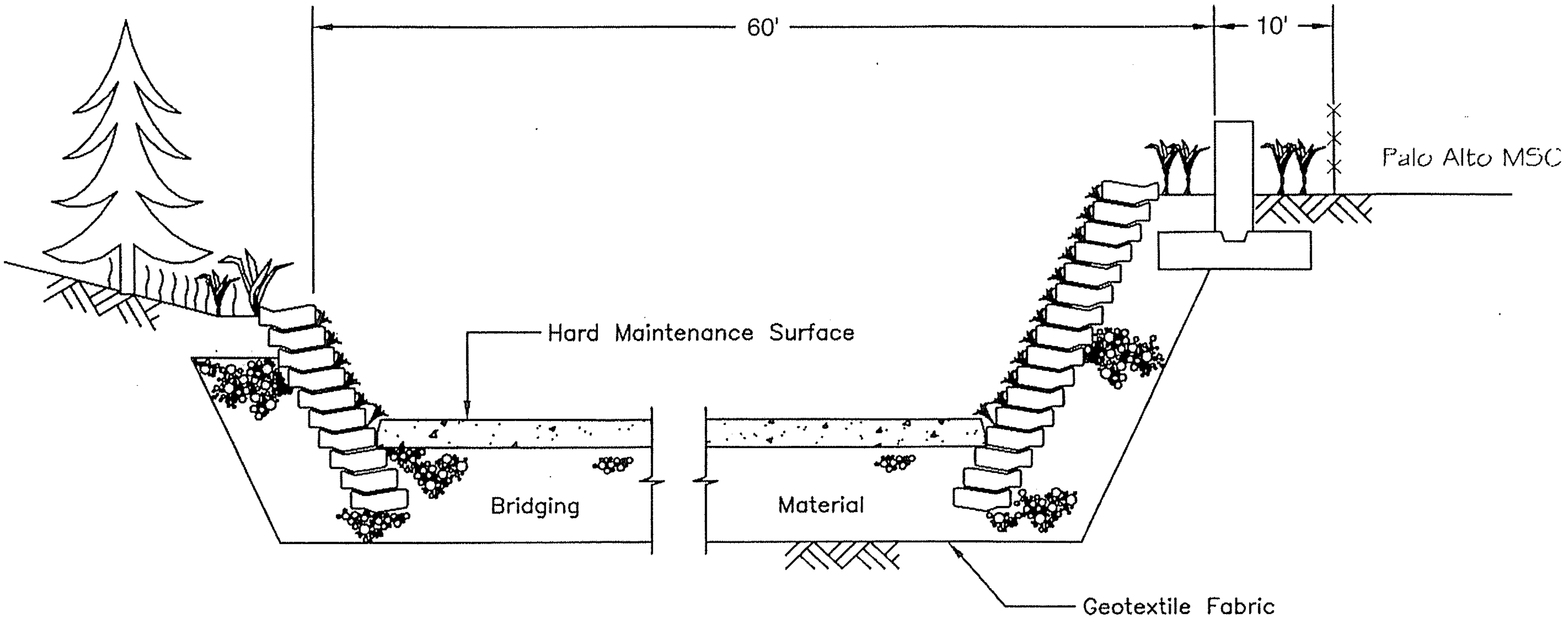
The raised floodwalls would consist of cast-in-place concrete wall extensions constructed directly on top of and doweled into the existing floodwalls. However, three other options are available to replace or strengthen the wall segments. These options are described in Chapter 7 of the Engineer's Report. The proposed floodwall improvements are anticipated to be complete in approximately 12 months. Floodwall improvements would be constructed such that work on the northwest bank proceeds roughly in tandem with work on the southeast bank, so that equal flood protection (and risk) is provided on both sides of the channel.



Source: H.T. Harvey & Assoc., Inc. (5/01)

PLAN VIEW OF DOWNSTREAM BYPASS

FIGURE 3



Source: Schaaf & Wheeler

CROSS-SECTION OF DOWNSTREAM BYPASS CHANNEL

FIGURE 4

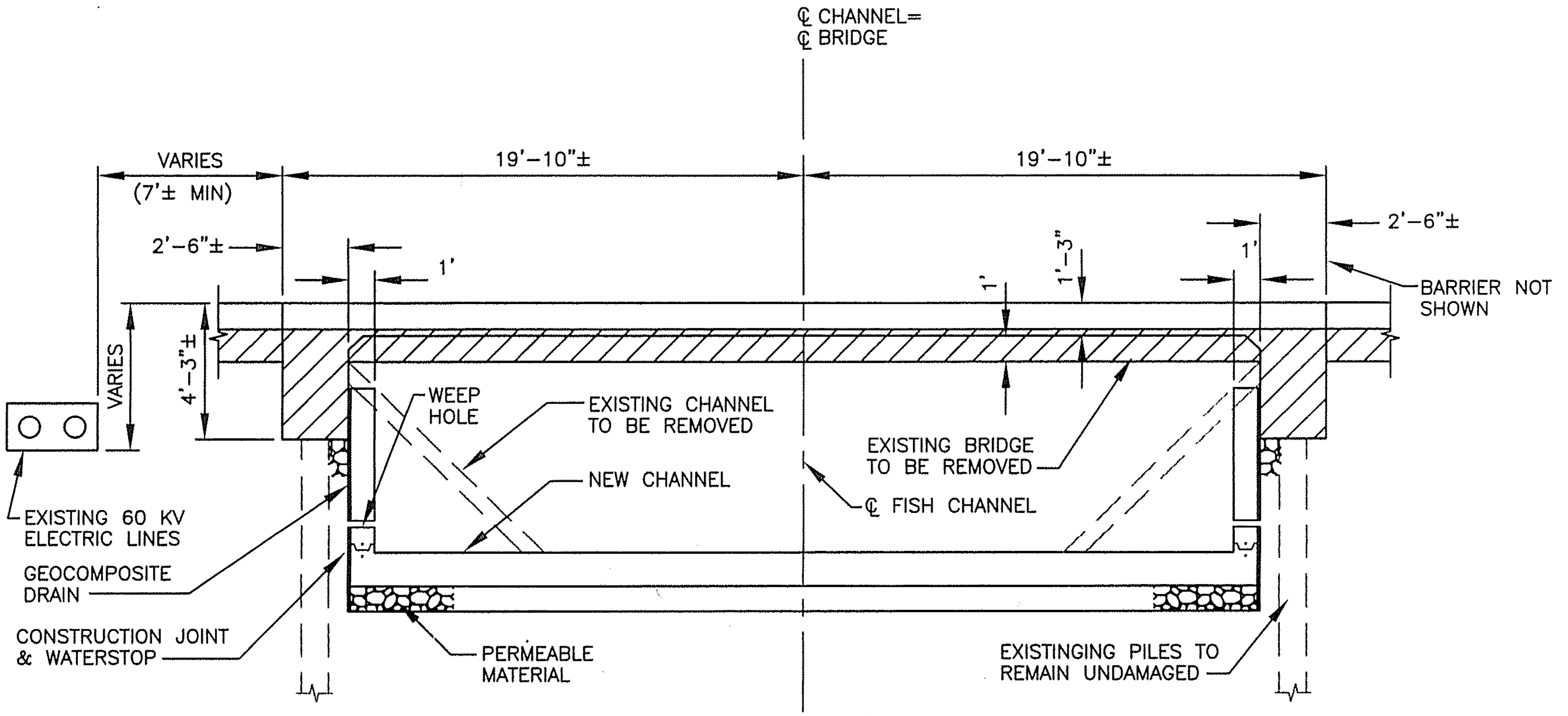


FIGURE 5

LOUIS ROAD BRIDGE REPLACEMENT

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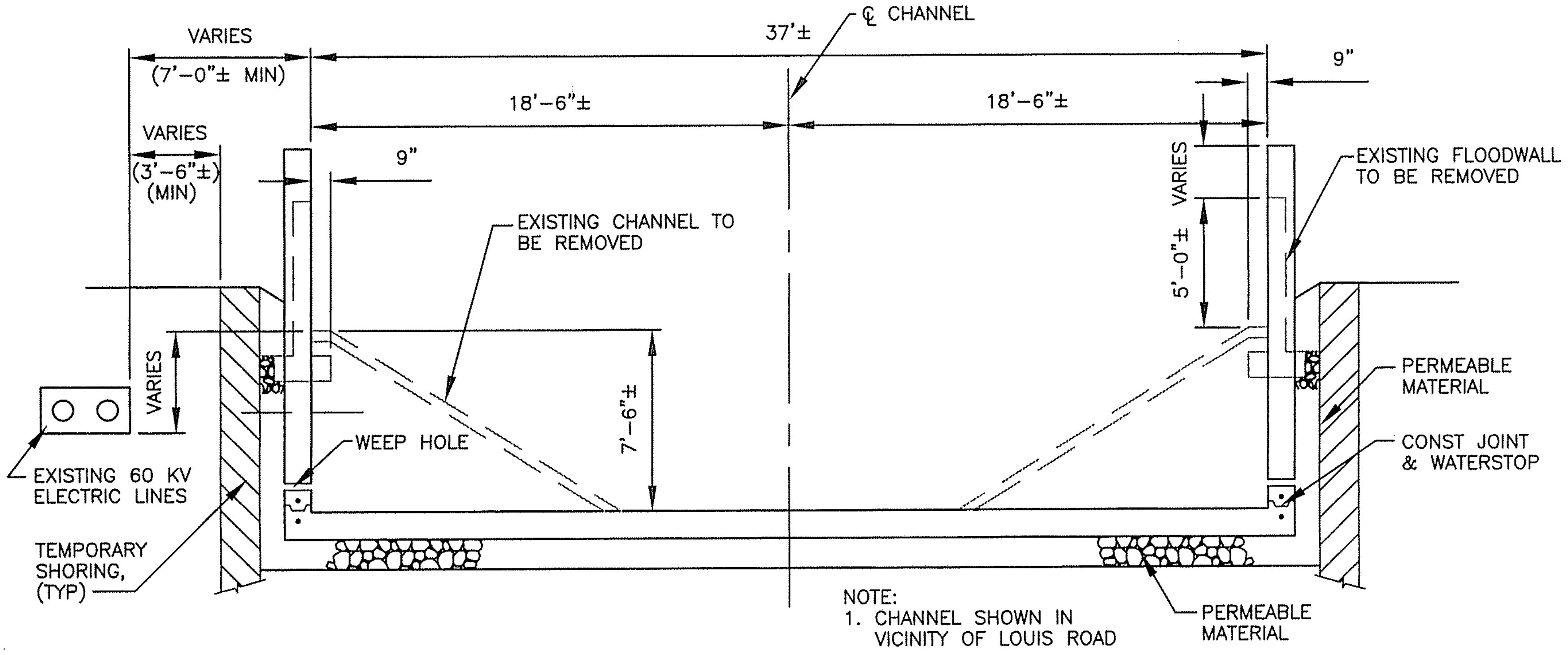

PROPOSED CHANNEL MODIFICATIONS AT LOUIS ROAD

FIGURE 6

DWG FILE NAME: G:\dwgs\Land Projects 3\102109\SHEETS\FIG_06.dwg

There are seven bridge structures that cross Matadero Creek within the project limits. Several of these structures experience pressurized flows during the one percent flood event; therefore, extension of the existing headwalls is required to meet FEMA freeboard requirements.

During the process of obtaining a Conditional Letter of Map Revision (CLOMR) from FEMA, the District conducted a risk-based analysis to determine the site-specific freeboard necessary to pass the one-percent flood discharge. Based on these results, the District proposed, and received approval from FEMA, to use risk-based freeboard criteria between Bayshore Road and Ross Road, and thus lower the required headwall and floodwall heights. Upstream of Ross Road to Alma Street, standard FEMA freeboard criteria will be applied. The standard criteria require four feet of freeboard at bridge crossings and for a distance of 100 feet upstream and downstream of the bridge.

Table 1 presents the existing and required headwall heights at the Matadero Creek bridge crossings that are within the project limits. These heights are measured in feet from the sidewalk. Headwalls at the Greer Road and Louis Road bridge crossings must be raised between 0.7 to 1.5 feet to meet FEMA freeboard requirements. These wall heights are determined from risk-based freeboard criteria. Upstream of Ross Road, standard FEMA freeboard criteria apply, and the upstream face of the Waverley Street bridge must be raised by 1.6 feet. As this headwall wraps around the edge of the bridge structure, it must continue to provide 4 feet of freeboard for a distance of 100 feet upstream of the bridge. Along the remaining stretch of channel, floodwalls must provide 3 feet of freeboard. At the downstream face of the Waverley Street bridge, the existing headwall is adequate to provide four feet of freeboard protection; however, walls will have to be raised by approximately 3 feet for a distance of 100 feet downstream of the bridge face to meet FEMA criteria, and by varying heights further downstream to provide 3 feet of freeboard.

The proposed headwall improvements are anticipated to require approximately 3-6 months to complete. Headwall modifications at Louis Road would be included as part of the proposed bridge replacement.

The project will also include construction of a new warped transition on the south channel bank at the downstream face of the Alma Street/SPRR culvert. Improvements to an existing 84-inch diameter storm drain outfall at this location will be made.

TABLE 1
EXISTING AND REQUIRED HEADWALL HEIGHTS AT MATADERO CREEK BRIDGE CROSSINGS (IN FEET ABOVE HEIGHT OF SIDEWALK)

Bridge	Existing Headwall Height (ft)	Required Headwall Height (ft)
West Bayshore Road		
Downstream	0.7	0.7
Upstream	0.7	0.7
Greer Road		
Downstream	3.1	3.8
Upstream	3.8	5.0
Louis Road		
Downstream	2.2	2.2
Upstream	2.8	4.3
Ross Road		
Downstream	2.3	2.3
Upstream	2.3	3.1
Middlefield Road		
Downstream	2.3	2.3
Upstream	2.3	2.3
Cowper Street		
Downstream	2.4	2.4
Upstream	2.4	2.4
Waverley Street		
Downstream	2.2	2.2
Upstream	2.2	3.8
Alma Street/SPRR		
Downstream	0.6	0.6
Upstream	0.6	0.6

Enhancement Opportunities

The mission of the District is to contribute to a healthy, safe, and enhanced quality of living in Santa Clara County through the comprehensive management of water resources in a practical, cost-effective, and environmentally sensitive manner. In November of 2000 the District Board adopted a policy to include improvements in all District projects that would enhance the quality of life in Santa Clara County. The District's Board has directed Staff not only to develop adequate mitigation for the significant impacts of a project, but also to present to the Board options for "environmental enhancements" related to a project pursuant to the Board's Ends Policy of improving the environmental quality of streams and environmental resources in its jurisdiction. In this instance, Staff has identified certain options for enhancements, and in the case of Enhancements 1 and 2, Staff has directed H.T. Harvey & Associates, ecological consultants, to evaluate these enhancements and provide a basis for the Board's adoption of these enhancements. Enhancement 2 is no longer a recommended enhancement; instead, it has now been incorporated into the project as mitigation for riparian impacts to provide more on-site mitigation. It has been evaluated in sufficient detail to be part of the proposed project evaluated in this EIR. In the event that the Board determines that Enhancements 1 or 3 are worth pursuing, further environmental review would be conducted in order to supplement the analysis done in this EIR to the extent necessary to satisfy the requirements of CEQA. The project that is proposed for adoption in this EIR does not commit the Board to the adoption of Enhancement 1 or 3.

Enhancement No. 1

Create a recreational path between the MSC property and the proposed overflow bypass channel

Currently there is a maintenance road along the eastern/southeastern boundaries of the MSC property. The area is open to the public and is to some extent utilized by people in the area. However, the road is not part of the Baylands trail system and therefore does not offer any amenities. The District proposes to enhance the maintenance road for use as a recreational trail. The trail would extend from East Bayshore Road to the end point of the maintenance road near the northeast corner of the MSC.

The proposed bypass channel requires a 3-foot tall floodwall on the western edge of the channel. The top of the floodwall would be at 8.0 feet NGVD, and is necessary to protect the MSC from floodwaters in the bypass channel. The trail would be located between the floodwall and the fence on the MSC boundary. The MSC property and the boundary fence will be separated from the trail by vegetation. This visual barrier will enhance the natural character of the site and make it more aesthetically appealing. An additional open fence would need to be installed on top of the floodwall to ensure that people and domestic animals do not have access to the bypass channel and the PAFB. The District will also install benches and decorative information signs along the trail pertaining to the vegetation and wildlife that is located on the site. The installation of the trail will not increase any impacts identified with the proposed project, and will not create any new impacts. Maintenance of the trail will occur simultaneously with the bypass channel maintenance. Furthermore, plantings associated with the trail will not be counted as mitigation for the loss of habitat due to project implementation.

Enhancement No. 2

Restoration of Matadero Creek downstream of Highway 101 to a more natural riparian habitat

The downstream reach of Matadero Creek has become a heavily vegetated riparian area due to continual sediment deposition. As a result, the area now provides valuable riparian habitat in the Baylands area. However, this habitat is a mixture of native and non-native vegetation. To enhance the quality of habitat in this area, the District proposes to remove all non-native vegetation and replant the exposed areas with native vegetation. Recommended species for replanting include red willow (Salix laevigata), Fremont cottonwood (Populus fremontii), California buckeye (Aesculus californica), coyote brush (Baccharis pilularis), California blackberry (Rubus ursinus), and blue elderberry (Sambucus mexicana). In addition, the District will include the continued removal of non-native vegetation as part of the downstream maintenance plan.

Based on biotic surveys, H.T. Harvey & Associates has determined that approximately 0.6 acres of habitat along this reach of Matadero Creek would be appropriate for removal of non-native vegetation and replacement with native vegetation. In response to several comments submitted by the public on the Draft EIR, this enhancement has been incorporated as part of the Matadero/Barron Creeks Long-Term Remediation Project to increase the amount of on-site mitigation.

The enhancement of the Matadero Creek riparian corridor via the removal of non-native species will entail a combination of methods. Manual removal of plants by hand or by heavy equipment (where appropriate) will be performed along with herbicide application. Broad spectrum herbicides such as Rodeo will be applied carefully to avoid impacts to native riparian vegetation. Basic plant-specific strategies are outlined below.

Eucalyptus Removal

Any eucalyptus trees removed on-site will be continually monitored for resprouts. A plan to control eucalyptus resprouts with herbicides will be devised with assistance from a certified Qualified Licensed Applicator. This program will continue for the entire 10-year monitoring period.

Giant Reed Removal

Manual removal of giant reed (Arundo donax) and stem application of herbicides is the recommended method of eradication for the Matadero Creek corridor. This treatment entails cutting the stems of giant reed approximately 2 feet above the existing grade, and immediately applying concentrated herbicide (Rodeo) directly to the cut stems. This method is most effective post-flowering (usually mid-August) when the plants are actively translocating nutrients to the root mass. Extensive cleaning and raking must accompany the removal of giant reed, as new plants can sprout from cut material. All stems must be hauled off site and disposed of properly. This method may require multiple years of treatment to ensure that the root mass is dead. Treatment in subsequent years will take place in late summer and will entail the manual removal of any new giant reed growth and the re-application of herbicides. For larger, more accessible stands of giant reed, removal using heavy equipment may occur. Access routes will be carefully selected, resource agency approval obtained, and the seasonal timing of operations limited to the dry season. Care will be taken to avoid damage to the existing native riparian vegetation.

Pampas Grass Removal

Pampas grass or jubata grass (Cortaderia jubata) will be removed manually. To ensure that re-sprouting does not occur, the entire root crown of the plant and the top portion of the larger lateral roots will be removed. Smaller plants may be removed with hand tools, but heavy equipment may be required for larger individuals. Larger plants will be removed first, and plumes cut off to avoid seed dispersal. Foliar application of a herbicide such as Rodeo may be used if the plants are too numerous to be removed manually. The removal areas will be monitored and any re-sprouts removed manually.

Groundcover Removal

Spring foliar application of 2% Roundup (without surfactant) is the most effective method available for eradicating periwinkle (Vinca major). Another effective, non-herbicide technique is cutting and solarizing with clear plastic. One or both of these methods may be used.

Enhancement No. 3

Restoration of Mayfield Slough

A recent biological survey prepared by the City found that Mayfield Slough supports a mid-elevation salt marsh habitat. Perennial pickleweed is the dominant plant found on this site, but it is not pristine habitat. The site is isolated from tidal influx, which may be responsible for the health of the site. A seasonally inundated pond is present in the center of the site, and is believed to be sustained solely by rainfall. However, the habitat currently has value for shore birds that frequent the nearby landfill.

Based on reconnaissance-level evaluations during the planning study, it was determined that Mayfield Slough was infeasible for compensatory remediation or mitigation of project impacts. The salt marsh habitat is indicative of the saline conditions of the soil and is not conducive to creating riparian habitat. Therefore, the District is looking at Mayfield Slough as an enhancement opportunity. The goal for this enhancement is to restore Mayfield Slough to tidal or muted-tidal, pickleweed dominated salt marsh. Restoration of Mayfield Slough can be accomplished in one of two ways, both of which are described below. Each of these methods requires substantial analysis, further CEQA review, and could be found infeasible.

Hydraulic Connection between Mayfield Slough and Emily Renzel Marsh

The Emily Renzel Marsh is a combination of freshwater, brackish water and saltwater habitats. Tertiary-treated effluent from the City's wastewater treatment facility is routed through a freshwater pond system in the marsh and eventually discharged into Matadero Creek. Saltwater from San Francisco Bay enters the marsh via pipes, and is routed through a series of sloughs. A pump station discharges this water to Matadero Creek, thus maintaining circulation of saltwater through the marsh sloughs.

Mayfield Slough could be hydraulically connected to Emily Renzel Marsh to provide an influx of saltwater that may enhance the existing salt marsh vegetation. This could be accomplished in two ways:

1. Bore and jack through the existing levee between Emily Renzel Marsh and the slough to install pipelines and establish a hydraulic connection; or

2. Route the existing pump station flows from Emily Renzel Marsh through the slough via a pipeline that would be installed in the existing levee.

In either case, a hydraulic circulation system would have to be established to regularly discharge incoming flows to Mayfield Slough back to Matadero Creek.

Issues and Concerns

The following issues will have to be addressed and resolved if this enhancement is carried out:

1. Determine the viability of a hydraulic connection between the two areas;

2. Establish how much necessary grading may be required to optimize the circulation of saltwater through Mayfield Slough, and determine the impact to existing jurisdictional areas within the slough;

3. Prepare hydraulic analysis of the likely circulation pattern requirements for sustaining a healthy salt marsh habitat in Mayfield Slough;
4. Determine the best method to discharge circulated flows from Mayfield Slough to Matadero Creek;
5. Evaluate the composition and strength of the existing levee between Emily Renzel Marsh and Mayfield Slough to determine the feasibility of installing pipelines for a hydraulic connection and evaluating the same for the levee between Mayfield Slough and Matadero Creek through which a discharge pipeline will be required for either gravity or pumped flows from Mayfield Slough.
6. Evaluate the potential impacts to endangered species (e.g. salt marsh harvest mouse) from project construction and implementation; and
7. Evaluate potential impacts to shorebird roosting and foraging habitat within Mayfield Slough.

Hydraulic Connection between Mayfield Slough and Palo Alto Flood Basin

Water circulation could be enhanced through Mayfield Slough by breaching or removing the levee between the slough and the Palo Alto Flood Basin (PAFB). This would allow brackish water to inundate the portions of the slough that are the same elevation or lower than the PAFB. Since salinities in the water in Matadero Creek are lower than Emily Renzel Marsh, this hydraulic condition may change the existing salt marsh habitat in Mayfield Slough. However, pickleweed has been identified by consulting biologists (*H.T. Harvey & Associates)* within the PAFB in the vicinity of the slough, so there is potential for the hydraulic connection to enhance the existing habitat. Breach or removal of the levee would essentially render Mayfield Slough part of the PAFB, and as such introduces it to periodic flooding during periods of high stormwater runoff.

Issues and Concerns

The following issues would have to be addressed and resolved if this enhancement is carried out:

1. Determine feasibility of connecting Mayfield Slough with the PAFB:
2. Monitor water quality in Matadero Creek to ascertain the level of salinity in the creek in the vicinity of Mayfield Slough;
3. Investigate existing levee between PAFB and Mayfield Slough to determine feasibility of breach or complete removal;
4. Investigate stability of levee/earthen banks along the City's landfill on north side of Mayfield Slough;
5. Prepare hydraulic evaluation of inundation levels in Mayfield Slough;
6. Evaluate grading impact on jurisdictional areas;

7. Evaluate impacts to endangered species habitat; and
8. Evaluate impacts to shorebird roosting and foraging habitat.

It should be noted that the analysis of enhancement opportunities 1 and 3 in this EIR is minimal and serves only to aid the District in its decision making process. These enhancement opportunities will have to go through individual environmental review prior to implementation.

BEST MANAGEMENT PRACTICES

The District has adopted a set of Best Management Practices (BMPs) that are employed on all District projects to reduce impacts. BMPs are an activity, procedure, or other standard management and work practice that provides the most effective means of preventing or reducing impacts associated with a proposed project. BMPs are considered by the District to be features of the proposed project, and all applicable BMPs will be implemented as part of the project. A list of District BMPs applicable to this project can be found in Appendix C of this document.

MAINTENANCE PROCEDURES

Past Maintenance

Between 1977 and 1998 the District performed routine sediment removal on Matadero Creek. The upstream reach of Matadero Creek from Louis Road to Highway 101 was consistently maintained during this period. The segment upstream of Louis Road has not had maintenance work performed since the early 1980s. There is no record of maintenance work on the downstream reach of Matadero Creek from 1977 to 1998. However, the District has recently developed a comprehensive "Stream Maintenance Program" in order to meet the District's flood protection mandates in a feasible, cost-effective, and environmentally sensitive manner.

The Stream Maintenance Program (SMP) Final EIR has been approved and adopted by the District. The SMP Final EIR addresses the impacts of ongoing maintenance on existing facilities. This EIR, however, addresses the impacts of maintaining the proposed new facilities. (see Table 2)

Projected Maintenance

To ensure the safe and efficient operation of the proposed flood control project, the District developed the following maintenance guidelines under the Stream Maintenance Program. Table 2 provides a brief reach by reach explanation of the procedures recommended by the guidelines for the proposed project area. A more detailed account of the maintenance program guidelines can be found in the Stream Maintenance Program[3] report prepared by the District.

Sediment removal occurs when the accumulation of sediment reduces floodwater conveyance capacity. Sediment removal generally occurs between July 1 and October 15 to take advantage of low creek flows. The average duration of a standard sediment removal project is ten days. Vegetation removal occurs when plant growth blocks channels, which reduces flood flow capacity. The most common method of plant removal is through the use of herbicides.

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[3] Santa Clara Valley Water District, 2001.

TABLE 2
MATADERO CREEK MAINTENANCE GUIDELINES

Reach	Channel Type	Maintenance Criteria
Existing and Proposed Facilities Mitigated in this EIR		
Palo Alto Flood Basin to 100 feet downstream of East Bayshore Rd.	Modified floodplain w/ 20-ft wide floodway on north side	-Vegetation growth along the banks of the low-flow channel is to be trimmed to maintain a clear floodway of 20 feet.
Overflow Bypass Channel downstream of Highway 101.	Gravity retaining wall system w/hard maintenance bottom	-Sediment within the overflow bypass will be removed at the downstream side of Highway 101 when it exceeds a depth of one foot above the concrete channel lining. -Emergent vegetation will be removed once it exceeds 4 feet in height.
Sediment Basin	Basin at the entrance of the overflow bypass channel	-Sediment within the sediment basin will be removed when it exceeds a depth of two feet.
100 feet d/s of East Bayshore Rd. to Highway 101	Partial earth bottom, partial concrete-lined channel	-Sediment deposition level under E. Bayshore Road will be inspected annually. Sediment removal will be performed when top of deposited sediments reaches –3 feet NGVD (1 foot above the channel invert of –4 feet NGVD). Removal of sediment in this reach will be performed in conjunction with removal of sediment under Highway 101 and upstream to Greer Road, as described below.
Existing Facilities Mitigated in the District's Stream Maintenance Program		
Under Highway 101 to West Bayshore Road	Concrete-lined channel	-Debris shall be removed from the nose of the bridge pier at Highway 101 when it exceeds a total width of 3 feet. -Remove sediment to profile documented in the 2002 Final Engineer's Report. This work is to be performed in conjunction with removal of sediment under East Bayshore Road and downstream for a distance of 100 feet.
West Bayshore Road to Greer Road	Sacked concrete banks, natural bottom	-District crews will perform annual inspection of the creek sections where City storm drains discharge near the creek invert. -Sediment within the entire reach will be removed to profile documented in the 2002 Final Engineer's Report. This work is to be performed in conjunction with sediment removal as described above, and will include sediment removal in front of City storm drain outfalls. -Emergent vegetation will grow in the natural channel bottom upstream of West Bayshore Road and must be completely removed when it exceeds a height of 4 feet.
Greer Road to Alma Street	Concrete lined channel w/low flow channels	-Remove sediment when an average sediment depth of one foot is reached. -Vegetation growing on bottom sediment is to be removed when height of the growth exceeds 4 feet. The upstream side of the bridge piers at Greer Road will be regularly inspected and debris removed from the pier noses when the width exceeds 3 feet.
Alma Street to Park Boulevard	Concrete lined channel w/low flow channels	-Debris will be removed from the nose of the splitter wall upstream of the SPRR Bridge when a width of 3 feet is exceeded. -Sediment will be removed from the channel bottom when the average depth exceeds 1 foot.
Park Boulevard to El Camino Real	Concrete lined channel w/low flow channels	-Sediment will be removed when it reaches an average depth of 1 foot. -If vegetation becomes established in the sediment deposits, both will be removed when the height of vegetation exceeds 4 feet.

E. CONSISTENCY WITH ADOPTED PLANS AND POLICIES

In conformance with Section 15125(b) of the CEQA Guidelines, the following section discusses the consistency of the proposed project with relevant adopted plans and policies.

1. Regional Plans and Policies

Bay Area 1997 Clean Air Plan

The 1982 Bay Area Air Quality Plan and 1997 Clean Air Plan ('97 CAP) establish regional policies and guidelines to meet the requirements of the Clean Air Act, as amended through 1990. The Bay Area is a non-attainment area for ozone. The updated Clean Air Plan adopted on December 17, 1997, outlines measures and improvements to help the Bay Area comply with the state's ozone standard. The Plan proposes the adoption of transportation, mobile source and stationary source controls on a variety of pollutant sources to offset population growth and provide improvement in air quality.

Consistency: Since the project would not consist of any new development or expansion of existing development, the proposed Matadero Creek flood control improvements project would not significantly increase pollutant emissions, vehicular traffic, or other adverse air quality impacts. The project does include use of all suitable measures to control construction dust. Therefore, the project would be consistent with the Clean Air Plan.

Regional Water Quality Control Board Basin Plan (San Francisco Bay Basin)

The State policy for water quality control is to maintain a level of water quality to provide the maximum benefit to the people of the State. Beneficial uses described in the Regional Water Quality Control Board (RWQCB) Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) serve as a basis for establishing water quality standards and discharge prohibitions to attain this goal. The Basin Plan provides a program of actions designed to preserve and enhance water quality and to protect beneficial uses based upon the requirements of the Porter-Cologne Act. It meets the requirements of the U.S. Environmental Protection Agency (EPA) and establishes conditions related to discharges that must be met at all times. The beneficial uses that are most relevant to the proposed project are described below:

Wildlife Habitat - provide a water supply with sufficient water quality for the maintenance of wildlife.

Consistency: The proposed flood control improvements have been developed to minimize sedimentation and erosion in the stream channel. Additionally, the project, once the proposed mitigation is implemented, is not expected to result in a significant adverse loss of riparian vegetation habitat (refer to **Section VII. D., Vegetation and Wildlife**, of this EIR). Therefore, the project would be consistent with this beneficial use.

Preservation of Rare and Endangered Species - provide an aquatic habitat necessary for the survival and maintenance of species established under State and/or Federal law as rare, threatened, or endangered.

Consistency: The proposed flood control improvements have been developed to minimize sedimentation and erosion into the stream channel. Additionally, the project includes mitigation measures to reduce any potential impacts to special status species (refer to **Section VII. D., Vegetation and Wildlife**, of this EIR). Therefore, the project would be consistent with this beneficial use.

Fish Migration - provide a migration route (such as a fish channel and/or fish ladder) and aquatic environment for anadromous or other fish species.

Consistency: The project includes mitigation measures to ensure the passability of migration routes for anadromous and other fish species (refer to **Section VII. D., Vegetation and Wildlife**, of this EIR). Therefore, the project would be consistent with this beneficial use.

Fish Spawning - provide a high quality aquatic habitat especially suitable for fish spawning.

Consistency: The proposed flood control improvements have been developed to minimize sedimentation and reduce impacts to aquatic habitat suitable for fish spawning and to avoid reductions in channel shading and resultant increased stream temperatures (refer to **Section VII. D., Vegetation and Wildlife**, and **Section VII., E., Water Quality**, of this EIR). The proposed project would not result in significant adverse temperature increases due to the loss of creek shading (refer to **Section VII. D., Vegetation and Wildlife**, of this EIR). Therefore, the project would be consistent with this beneficial use.

Cold Fresh Water Habitat - provide a cold water habitat to sustain aquatic resources associated with a cold water environment.

Consistency: The proposed project would not affect aquatic resources associated with a cold water environment since the proposed project includes the replacement of channel shading (which contributes to moderation of stream temperatures) that would be lost during construction (refer to **Section VII. D., Vegetation and Wildlife**, of this EIR). Therefore, the project would be consistent with this beneficial use.

TMDL Program

The implementation portion of the Basin Plan includes descriptions of specific actions to be taken by local public entities and industries to comply with the policies and objectives of the Plan. These include measures for urban runoff management and agricultural wastewater management. By June 2002, the Basin Plan will also include an amendment that requires the identification of TMDLs (Total Maximum Daily Loads) for each water-body within the jurisdiction of the RWQCB. A TMDL defines the specified maximum amount of a pollutant that can be discharged into the water-body from all combined sources. These water-body specific targets are considered necessary by the EPA in order to attain water quality standards in an impaired watercourse.

Consistency: The proposed project will comply with TMDL standards for runoff when the amendment takes effect in June 2002. Therefore, the project would be consistent with the TMDL program and will not contribute to the overall degradation of the waterway.

Santa Clara Valley Urban Runoff Pollution Prevention Program

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) was developed in accordance with the requirements of the 1986 San Francisco Bay Basin Water Quality Control Plan, for the purpose of reducing water pollution associated with urban storm water runoff. This program was also designed to fulfill the requirements of Section 304(1) of the Federal Clean Water Act, which mandated that the Environmental Protection Agency develop National Pollutant Discharge Elimination System (NPDES) Permit application requirements for storm water runoff. The Program's Municipal NPDES storm water permit includes provisions requiring regulation of storm water discharges associated with new development and construction and development of an area-wide watershed management strategy. The permit also identifies recommended actions for the preservation, restoration, and enhancement of the San Francisco Bay Delta Estuary.

Consistency: One of the objectives of the project is to reduce erosion and sedimentation. The District would implement erosion control and storm water management practices during project construction, in accordance with the Santa Clara Valley Urban Runoff Pollution Prevention Program and NPDES permit requirements. The proposed project would not result in an impact upon the conservation and restoration of streams and riparian zones or areas of special or unique ecological significance. For these reasons, the proposed project would be consistent with the Santa Clara Valley Urban Runoff Pollution Prevention Program and NPDES permit process.

San Francisco Bay Trail

The San Francisco Bay Trail is a network of multi-use pathways circling San Francisco and San Pablo Bays. The Bay Trail is approximately 40 percent complete, and will eventually encompass a 400-mile route through all nine Bay Area counties and 42 shoreline cities. An existing section of the Bay Trail is located along the PAFB, adjacent to the downstream portion of the project site.

Consistency: The project would not interfere with the use of this section of the Bay Trail and would not detract from the peaceful setting surrounding the trail. Therefore, the project would be consistent with the San Francisco Bay Trail.

Santa Clara Valley Water District

The mission of the District is to conduct a sound water management program that serves the community. It is the goal of the District to provide a supply of water, adequate in both quantity and quality to serve the community, to provide protection against flooding, and to coordinate all other community water related programs to achieve full water management. It is also the goal of the District to protect the environment and economic well being of the community in the formulation and execution of District programs and projects.

2. Local Plans and Policies

City of Palo Alto Comprehensive Plan

The following Palo Alto Comprehensive Plan Elements are relevant to the project:

Land Use Element

The Palo Alto Land Use Element provides guidance for the development and preservation of public and private properties within the Palo Alto planning area.

Consistency: The proposed Matadero Creek flood control improvements would not change any land use designations, either on-site or in the surrounding area, and would not change the suitability of any property for its existing or planned land use. The project would therefore conform to the policies, goals, and objectives of the Land Use Element of the Palo Alto Comprehensive Plan.

Natural Environment/Open Space Element

The City of Palo Alto Natural Environment Element is designed to manage and protect natural resources, in balance with economic and community development. Relevant goals and policies of the Natural Environment Element seek to minimize the impact of flooding and erosion.

Consistency: The project would be consistent with the goals and policies of the Natural Environment Element, since the project would not result in an impact upon the conservation and restoration of streams and riparian zones or areas of special or unique ecological significance. The proposed project would reduce flooding hazards. The project includes measures to minimize impacts on plants, animals, and water quality to a less than significant level (refer to **Section VII. D., Vegetation and Wildlife, and Section VII. E., Water Quality**, of this EIR). For these reasons, the proposed project would be consistent with the policies, goals, and objectives of the Natural Environment/Open Space Element.

F. USES OF THE EIR

This Environmental Impact Report (EIR) is intended to provide the District Board of Directors, other public agencies, and the general public with the relevant environmental information to use in considering the proposed project. Actions taken which would rely upon this EIR could include but are not limited to:

1. Approval of project design (District);
2. Award of design and construction contract(s) (District);
3. Grant of easement (City of Palo Alto);
4. Dedication of park land (City of Palo Alto);
5. Street opening permit(s) (City of Palo Alto).

This EIR will also provide the environmental review for the renewal of the Corps Section 404 permit for maintenance activities on Matadero Creek.

This EIR is an informational document which will inform public agency decision makers and the public of the significant environmental effects of the project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. This EIR addresses the proposed flood control improvements along Matadero Creek in Santa Clara County. The EIR identifies potential environmental impacts and appropriate mitigation measures to minimize the potential environmental effects of the project.

SECTION VII
ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

A. LAND USE

1. Existing Setting

Overview of the Project Area

Matadero Creek is located in the northwest portion of Santa Clara County, originating near the Town of Los Altos Hills in the northeasterly slopes of the Santa Cruz Mountains. The creek flows for 7.3 miles in a northerly direction through the foothills, residential, commercial and industrial areas of the City of Palo Alto (refer to Figure 2). Downstream of Highway 101 (Bayshore Freeway), Matadero Creek discharges into the Palo Alto Flood Basin (PAFB), which outfalls into San Francisco Bay. Matadero Creek has a total watershed area of approximately 15.9 square miles, which is comprised of mountainous land and gently sloping valley floor.[4]

Barron Creek is also located in the northwest portion of Santa Clara County, originating in the residential areas of Los Altos Hills, west of Interstate 280. Barron Creek flows in a northeasterly direction through the City of Palo Alto and eventually joins Adobe Creek, just upstream of Highway 101. Barron Creek is primarily an urban watershed with a drainage area of about three square miles. Many modifications to the creek were made in the late 1950's.[5]

Currently, a concrete culvert diverts excess flows from Barron Creek to Matadero Creek. This diversion channel originates downstream of Foothill Expressway and joins Matadero Creek just west of El Camino Real.

Existing Land Use and Creek Channel Characterization

The project portion of Matadero Creek extends from the PAFB upstream to Alma Street (refer to Figure 2). The total length of creek involved in the proposed project is approximately 1.5 miles. Downstream of Highway 101, Matadero Creek is a narrow, natural channel with heavy riparian vegetation along both sides of the creek. This section of the creek is bordered by the PAFB to the northeast, the City of Palo Alto Municipal Services Center (MSC) to the southeast, and the Emily Renzel Marsh to the northwest.

Between West Bayshore Road and Greer Road, Matadero Creek has an earthen bottom and sacked concrete banks. Between Greer Road and Alma Street, Matadero Creek is a concrete-lined, trapezoidal and U-frame channel. Most of the land uses surrounding this portion of the creek are single family detached residential homes. Other land uses along the creek include the PG&E substation just south of Highway 101, a church just south of Middlefield Road, and an Arco service station, just north of Middlefield Road.

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[4] Santa Clara Valley Water District, Matadero and Barron Creeks Planning Study, April 1988.

[5] Santa Clara Valley Water District, Matadero and Barron Creeks Planning Study, April 1988.

For this stretch of Matadero Creek, the District's right-of-way typically extends approximately 5-8 feet from the edge of the top-of-bank on the southeastern side of the creek, and approximately 12-15 feet from the edge of the top-of-bank on the northwestern side of the creek channel. The District maintains an unpaved access road along the northwestern side of the creek channel.

Several roadway bridges have been constructed across the Matadero Creek channel within the project area, including at Greer Road, Louis Road, Ross Road, Middlefield Road, Cowper Street, Waverley Street, Bryant Street, and Alma Street. Numerous underground utilities are also present in the area of these existing bridge crossings. In addition, two buried 60 kilovolt (kV) electric transmission lines, a sanitary sewer line, and a buried communications cable run along the northeastern side of the Matadero Creek channel. The 60 kV lines are reportedly encased in insulating oil. Additional detail about these utilities is provided in **Section VII. J., Utilities and Services**, of this EIR.

The creek channel between Highway 101 and Alma Street is closed to the public and does not have any known recreational uses. Downstream of Highway 101, the Palo Alto Flood Basin contains a network of trails and recreational areas. The levee adjacent to the downstream reach of Matadero Creek is a designated trail that connects to the San Francisco Bay Trail at the confluence of the creek and San Francisco Bay. In addition, there is a paved trail that runs parallel to East Bayshore Road in the vicinity of the project area. This trail crosses over Matadero Creek and continues along the west side of the MSC property to Adobe Creek. This latter trail intersects the maintenance road that runs along the east and south boundaries of the MSC. The maintenance road is not a designated trail but it is utilized, to some extent, by the people in the area.

2. Land Use Impacts

For the purposes of this project, a land use impact is considered significant if the project would:

1. result in a permanent population that exceeds official regional or local population projections;
2. conflict with any applicable land use plan, policy or regulation of the jurisdiction in which the project is located, adopted for the purpose of avoiding or mitigating an environmental effect;
3. physically divide an established community (for example, installation of above-ground pipeline through an established neighborhood that would cause a permanent disruption in the physical arrangement of that established neighborhood);
4. be incompatible with existing and planned surrounding land uses due to the permanent generation of noise, odors, or emissions that could be considered a nuisance;
5. result in a prolonged temporary or a permanent deterioration in the quality of existing recreational uses along stream corridors used for walking and outdoor passive recreational activities;
6. displace a large number of people or significant amount of housing in relation to existing market-rate and affordable housing (i.e., demolition of 10 or more existing affordable housing units);

7. convert three acres or more of Prime Farmland, Unique Farmland or Farmland of Statewide Importance (as shown on maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency) to non-agricultural uses, unless the site is designated for urban development in local general plans and is within an area of existing and planned urban uses;
8. locate permanent urban development within 100 feet of agricultural lands in a manner that could result in conflicts between the uses due to potential complaints regarding agricultural operations (noise, dust, odors, pesticide drift) and/or potential vandalism to agricultural lands.
9. directly induce substantial population growth. The determination of significance shall consider the following factors: the degree to which the project would cause growth (i.e. new housing or employment generators) or accelerate development in an undeveloped area that exceeds planned levels in local land use plans; or
10. indirectly induce substantial growth or concentration of population , i.e. introduction of a new major infrastructure project or expansion of a critical public facility (road or sewer line) necessitated by new development, either of which could result in the potential for new development not accounted for in local general plans.

Land Use Conflicts

Land use conflicts can arise from two basic causes: 1) a new development or land use may cause impacts to persons or the physical environment in the vicinity of the project site or elsewhere; or 2) conditions on or near the project site may have impacts on the persons or development introduced onto the site by the new project. Both of these circumstances are aspects of *land use compatibility*. Potential incompatibility may arise from placing a particular development or land use at an inappropriate location, or from some aspect of the project's design or scope. Depending on the nature of the impact and its severity, land use compatibility conflicts can range from minor irritations and annoyance to potentially significant effects on human health and safety. The discussion below distinguishes between potential impacts *from* the proposed project *upon* persons and the physical environment, and potential impacts *from* the project's surroundings *upon* the project itself.

Land Use Impacts from the Project

The District would only perform construction activities in areas where it has existing fee title or appropriate easement rights-of-way.

Upstream of Highway 101

The project would not change the intensity of existing or planned land uses in the area, nor would it be incompatible with the surrounding land uses, which are primarily residential development, since the project would not substantially alter the location, configuration or character of the existing creek channel.

The proposed channel improvements and floodwall extensions would be constructed within the existing District right-of-way. The construction of the U-frame channel in the vicinity of Louis Road would be built within the existing channel width. Floodwall extensions would be built on top of existing floodwalls along the tops of the channel banks. The proposed improvements would not require any long-term encroachment (beyond the construction period) into adjacent properties. For these reasons, the project would not result in significant land use impacts upstream of Highway 101.

- **The project would not result in significant land use impacts upon adjacent land uses upstream of Highway 101. (Less Than Significant Impact)**

Downstream of Highway 101

Because the project would be constructed within existing District right-of-way, the proposed flood control improvements would not result in significant long-term land use impacts upon the City's Municipal Service Center (MSC) or the Emily Renzel wetland restoration marsh area. The placement of a bypass channel along the MSC's boundary will not significantly disrupt the use or function of the MSC. The bypass channel will not adversely impact the ongoing functions of either the MSC or Emily Renzel Marsh.

- **The project would not result in significant land use impacts to the MSC facility. (Less Than Significant Impact)**

Recreational Impacts

Implementation of the proposed project would not interfere with the daily use and operation of designated trails located in and around the PAFB because the bypass channel does not intersect any established trails.

- **Implementation of the proposed project will have no impact on recreational facilities (No Impact)**

Construction Impacts

Construction of the project would involve earthmoving, grading, delivery of construction materials, and the construction itself with the use of power equipment, possibly pile drivers, concrete trucks, and other sources of noise, dust, and traffic. The project activities would result in potentially significant land use impacts during construction of the proposed flood control improvements. These impacts could include disruption of adjacent land uses, including residences and the MSC facility, during construction activities. These impacts would include additional noise and dust, vibration impacts from pile driving, potential loss of privacy, disruption of local traffic circulation and hazards to pedestrians, and property damage impacts.

The replacement and raising of the Louis Road Bridge would result in a significant disturbance to the residential land uses adjacent to Louis Road and the creek. Bridge and road work would generate a substantial amount of noise, dust, and general disturbance at these residences, and could interfere with residential access and pedestrian circulation. These impacts are discussed in more detail in **Section VII. I., Construction Related Impacts**, of this EIR.

- **Construction activities would result in significant physical disturbance, and could cause temporary disruption to the adjacent land uses. (Significant Temporary Impact)**

Maintenance Impacts

Past maintenance records show that maintenance activities are short term (10 days or less, on average) and concentrated within the creek channel. Noise disturbances from these activities would be minimal, and constitute more of a nuisance than a significant land use impact. Maintenance activities associated with the operation of Matadero Creek and the bypass channel will have no significant impact on land use.

- **Maintenance activities would not result in a significant impact on land uses. (Less than Significant Impact)**

Enhancement Impacts

The restoration of Mayfield Slough could impact recreational resources in the project area. The levee between the slough and the PAFB is a designated trail that connects to the Bay Trail. During construction, the section of levee to be removed would need to be closed, which would limit recreation use in the area. In addition, a permanent pedestrian bridge may be required to ensure uninterrupted use of this trail after construction is complete. In the absence of additional information, it cannot be conclusively stated that the changes to Mayfield Slough would not have significant land use impacts.

The restoration of the lower reach of Matadero Creek will not impact the project area or the land uses of adjacent sites. The trail next to the MSC would not obstruct the MSC from continuing with current operations.

Enhancements 1 and 3 are analyzed for potentially significant environmental impacts under CEQA, but not to the same degree as the proposed project. As a result, they are not part of the proposed project that is evaluated in this EIR, and would require further CEQA review prior to implementation.

- **Restoration of Mayfield Slough could significantly impact recreational resources in the project area unless mitigation is incorporated into the project. (Less than Significant Impact with Mitigation)**

Land Use Impacts to the Project

The possible sources of land use impacts to the project include effects from neighboring land uses such as the City's MSC facility. Diesel fuel has been stored at the MSC facility and has leaked into the soil adjacent to Matadero Creek. The location of the bypass channel adjacent to the MSC could increase the potential for hazardous materials to enter the creek channel. This impact is discussed in more detail in **Section VII. F., Hazardous Materials**, of this EIR.

- **Materials used at the MSC would have significant land use impacts on the proposed bypass channel downstream of Highway 101. (Significant Impact)**

Land Use Impacts Associated with Mitigation Measures

In **Section VII. D., Vegetation and Wildlife**, of this EIR, there is a detailed discussion of the off-site mitigation areas required to offset riparian impacts of the project. The use of these lands for habitat mitigation would affect the existing land uses. However, because the District owns these sites, the use and replanting of these areas as mitigation sites will not have a significant adverse land use impact.

- **The development of off-site mitigation areas would not cause a significant land use impact. (No Impact)**

Land Use Issues not Associated with the Proposed Project

Implementation of the proposed project does not include the expansion of infrastructure or increase in jobs or housing in the project area. As a result, the project will not induce population growth in Palo Alto or the Bay Area. In addition, the flood control improvements will not require the removal of any existing housing and will not divide any established community. Furthermore, the project will not require the conversion of any agricultural lands. Therefore, the proposed project will have no impact on population, housing, or agricultural lands.

- **Flood control improvements will have no impact on population, housing or agricultural lands. (No Impact)**

3. Mitigation Measures for Land Use Impacts

CEQA requires that an EIR identify mitigation for each significant impact which might result from the project, and that the EIR distinguish between mitigation proposed to be included in the project, and other mitigation measures which are not proposed but which might reasonably be expected to reduce or avoid the significant impacts.

Mitigation Measures Proposed by the Project

In addition to the proposed mitigation, the District has a set of standard Best Management Practices (BMPs) that are employed on all projects to reduce impacts. BMPs are considered by the District to be features of the proposed project and it should be assumed that all applicable land use BMPs will be implemented as part of this project. A complete list of District BMPs can be found in Appendix C of this document.

The following mitigation measures are proposed as part of the project to reduce potential land use impacts to a less than significant level:

- The District would implement a Construction Management Plan to minimize impacts on the surrounding sensitive land uses, particularly the residences, to the fullest extent possible. The Construction Management Plan would include the following measures to minimize impacts of construction upon adjacent sensitive land uses:
    - Early and frequent notification and communication with the neighborhood and other land uses of the construction activities, including the onset, expected consequences, and actual consequences of various construction activities, as well as a commitment to, whenever possible, reduce problems that occur. (see District BMPs 25 and 31)

  - Measures to control dust, noise and water pollution resulting from construction activities (refer to **Section VII. E., Water Quality**, and **Section VII. I., Construction-Related Impacts**, of this report). (see District BMPs 26, 27, and 29)
  - Measures to keep all streets and public ways clean of debris, dirt, dust and other undesirable outcomes of construction activities (refer to **Section VII. I., Construction-Related Impacts**, of this report). (see District BMPs 26, 27, and 29)
  - Measures to control noise by limiting hours of operation of construction activities, avoiding more sensitive early morning and evening hours, and scheduling equipment selection and limiting the maximum noise level of the construction equipment based on the City of Palo Alto Noise Ordinance (refer to **Section VII. I., Construction-Related Impacts**, of this report). (see District BMP 26)

- Mitigation measures for traffic, noise, air quality, hazardous materials and visual impacts are identified within their respective sections of this EIR. Mitigation measures to minimize construction-related air quality and noise impacts are provided in **Section VII. I., Construction-Related Impacts**, of this EIR.

Conclusion: **Development of the project as proposed would not result in significant land use conflicts with established adjacent land uses. With implementation of the above mitigation measures, construction-related land use impacts would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

B. GEOLOGY AND SOILS

The following discussion is based upon a preliminary geotechnical investigation of the project site conducted by *Lowney Associates* in September of 1999. A copy of this report is contained in Volume II of the Matadero/Barron Creeks Long Term Remediation Project Planning Study.

1. Existing Setting

Matadero Creek originates in the northeasterly portion of the Santa Cruz Mountains, and flows in a northerly direction, to the Palo Alto Flood Basin (PAFB). Matadero Creek passes through a narrow, alluvial mountain valley, then crosses through shallow marine deposits across the alluvial plain at the base of the Santa Cruz Mountains. Within the project area, the creek flows from an elevation of approximately 30 feet above sea level at El Camino Real, through the relatively level Santa Clara Valley to an elevation of approximately five feet at the PAFB.

Soils and Geology

Soils on the project site consist of fill material overlying native alluvium. The fill material consists of silty clay with variable percentages of sand and gravel. The fill varies between 3.5 to 8.0 feet in thickness and is classified as having high expansion potential.

The native soils beneath the fill consist of alternating layers of stiff to very stiff silty clay, medium dense to dense sand, medium dense to dense clayey sand, and medium dense to very dense gravely sand. These underlying native soils were classified as having low to moderate expansion potential.

Groundwater

Surface water and groundwater are expected to occur at seasonally varying depths along the subject portion of the creek channel. At some locations, geotechnical hazards may be greater due to changes in the groundwater levels. The depth to groundwater at Matadero Creek is expected to range from approximately 9-10 feet near Highway 101 to 12-16 feet near Alma Street. Groundwater likely flows to the northeast, following the direction of surface water in the creek channel, towards the San Francisco Bay.

Seismicity and Seismic Hazards

The proposed site is located within the seismically active San Francisco Bay region. The primary regional faults are shown on Figure 7. The closest mapped fault to the site is the Shannon Fault, located approximately four miles south-southwest of the project site. The San Andreas Fault is located approximately six miles to the southwest. The Hayward and Calaveras Faults are located approximately 13 and 17 miles northeast of the project site, respectively. With the exception of the Shannon Fault, which is considered potentially active, all of these faults are considered active. No mapped faults or fault traces are located on the site. The most significant seismic hazards affecting the site are liquefaction, lurching and lateral spreading caused by a major earthquake on one of the major faults in the region. The potential for earthquake induced liquefaction, lurching, and lateral spreading is considered moderate to high at the majority of the flood control improvement sites.

2. Geologic and Soils Impacts

For the purposes of this project, a geologic impact is considered significant if the project would:

- be located on a site within an area of active faults, within an Alquist-Priolo zone, or within an area subject to strong seismic shaking and/or seismic-related ground failure, including liquefaction and that cannot be mitigated through the use of standard engineering design techniques as specified in the latest edition of the Uniform Building Code;
- be located on a site with geologic features that pose a substantial hazard to property and/or life (i.e., within to areas of landslides, unstable slope conditions, or slopes in excess of 30 percent) or would create a potentially hazardous condition (i.e., construction of cut slopes exceeding a grade of 1.5 horizontal to 1.0 vertical or over 15 feet in height); or
- be located in an area where soils or near-surface geologic conditions are sufficiently unstable (i.e., shrink-swell soils) or otherwise susceptible to failure and require special design or engineering to reduce the hazard.

Soils and Geologic Impacts

There are geologic and soil conditions present along Matadero Creek which could impact the project and construction of the improvements. The soils on the site are classified as having a moderate to high expansion potential. Construction on these soils could expose the proposed channel improvements and structures to damage from expansive conditions.

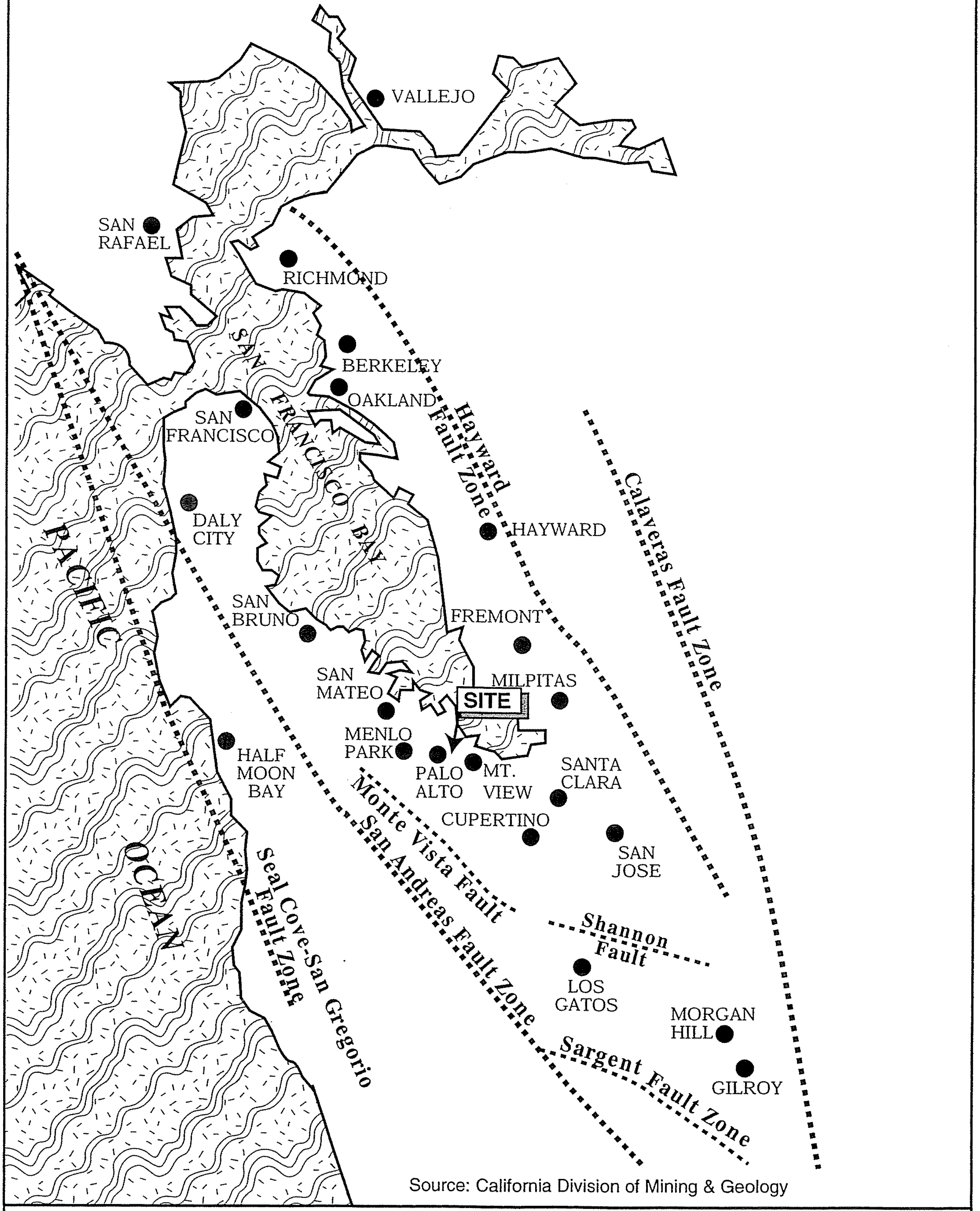
The construction of the floodwalls, bridge improvements, and the U-frame channel near Louis Road, would require temporary excavations within the channel. Excavations within the channel would increase the potential for slope instability along the channel, and would require the placement of subgrade stabilization materials at the base of the channel, in order to support construction traffic. The presence of these geologic and soil conditions is considered a significant impact.

- **The presence of expansive soils and potentially unstable channel slopes is considered a significant geologic and soils impact. (Significant Impact)**

Seismic Hazards

Matadero Creek is within the seismically active San Francisco Bay Area and strong ground shaking can be expected during the anticipated life of the project. Ground shaking on the site could damage bridges, concrete channel structures, and floodwalls. The soils in the area consist primarily of clays, and the sands are generally medium to very dense and contain variable amounts of fine grains. For these reasons, the potential for liquefaction during seismic shaking is low. Because the sand layers are medium dense to very dense and located below thick layers of clay deposits, the potential for ground rupture due to liquefaction is also considered low.

The project would be designed and constructed in accordance with standard geotechnical and engineering practices to avoid or minimize potential damage from seismic shaking on the site (refer to the Engineer's Report). Therefore, the project would not result in significant seismic impacts.



Source: California Division of Mining & Geology

FAULTS OF CONCERN IN THE SAN FRANCISCO BAY AREA FIGURE 7

- **Development of the project, as proposed, would not expose the proposed flood control structures and/or occupants of adjacent land uses to significant seismic impacts. (Less Than Significant Impact)**

Construction Impacts

Because the proposed project site is located within a seismically active region, there is the potential for construction crews to sustain injuries during a major earthquake. Injuries in connection with heavy equipment and building materials could occur. However, earthquakes are an inherent and accepted danger in the Bay Area and the project would be constructed in accordance with standard geotechnical and engineering practices to minimize potential dangers associated with seismic shaking on site.

- **Seismic activity in the project will not significantly impact construction of the project. (Less than Significant Impact)**

Maintenance Impacts

Maintenance activities associated with the operation of Matadero Creek and the overflow bypass channel will have no impact on geology and soils. Maintenance crews, however, will encounter the same level of seismic related hazards as construction crews due to the inherent earthquake danger in the Bay Area. **(Less than Significant Impact)**

- **Seismic activity in the region will not significantly impact maintenance of the project area. (Less than Significant Impact)**

3. Mitigation Measures for Geologic and Soils Impacts

Mitigation Measures Proposed by the Project

The following standard geologic measures are included as part of the project and would reduce the potential for project-related geologic impacts:

1. Geotechnical investigations conducted to date have identified sufficient site and soil characteristics to support a specific project design that will reduce potential hazards.

2. In order to reduce the potential for damage to structures from highly expansive soils, slabs-on-grade would have sufficient reinforcement and be supported on a layer of non-expansive fill, in accordance with the recommendations of the geotechnical investigation conducted for the project. The foundations of proposed improvements would also be placed below the depth of seasonal moisture fluctuation.

3. Construction in the creek channel would require the placement of subgrade stabilization materials at the base of the channel, to allow the native subgrade soils to support construction traffic. Temporary stabilization shall be performed in accordance with the recommendations of the geotechnical investigation for the project.

4. All new bridges, bypass and channel structures would be constructed in accordance with appropriate building code standards to withstand seismic shaking.

Conclusion: **With implementation of the above mitigation, potential geological impacts of the project would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

C. HYDROLOGY, DRAINAGE AND FLOODING

1. Existing Setting

Hydrology and Drainage

Mean annual precipitation in the project area is approximately 14 inches on the valley floor. The area receives about 90 percent of this rainfall from November through March. Rainfall runoff in the upper portion of the watershed and storm runoff from the urbanized valley floor areas produce most of the flow in Matadero Creek and Barron Creek. Some of the runoff is from the surrounding residential area.

The one percent flood flows for Matadero Creek and Barron Creek have been determined by the District. The peak one percent flood flows for Matadero and Barron Creeks are presented in Table 3.

TABLE 3
PEAK ONE PERCENT FLOOD FLOWS FOR MATADERO AND BARRON CREEKS IN THE PROJECT AREA

Creek Channel Reach Location	One Percent Peak Flow (cfs)
Matadero Creek	
Upstream of Diversion Channel	2,000
El Camino Real to Alma Street	2,700
Alma Street to Middlefield Road	2,800
Middlefield Road to Highway 101	2,800
Downstream of Highway 101	3,100
Barron Creek	
Upstream of Diversion Channel	740
Diversion Channel to Middlefield Road	160
Middlefield Road to Highway 101	250
Diversion Channel	
Upstream of Matadero Creek	530
Upstream of El Camino Real	1,590

For a complete discussion of the hydrology of Matadero and Barron Creeks, refer to the attached Engineer's Report prepared for the project.

Flooding

The project site and many of the adjacent land uses are located within the one percent floodplain as shown in the "Problem Definition" chapter of the attached Engineer's Report. As described in the attached Engineer's report, the District completed a series of flood control improvements on Matadero and Barron Creeks in July, 1996. The high flow underground diversion from the Barron Creek sediment basin to Matadero Creek provides adequate flood conveyance for Barron Creek. The improvements on Matadero Creek increased flood protection but they did not achieve the design objectives of adequately conveying the 100-year flood flows. Areas within the floodplain would be inundated to a depth of approximately 1-3 feet during the one-percent (100-year) flood.[6]

2. Hydrology, Drainage, and Flooding Impacts

For the purposes of this project, a hydrology, drainage or flooding impact is considered significant if the project would:

1. result in increased runoff volumes or rates, or alteration of drainage patterns which would: 1) exceed design capacity of existing or planned storm drain facilities, 2) cause downstream or off-site drainage problems, 3) increase the risk or severity of flooding in downstream areas, or 4) result in runoff-induced erosion (i.e., gullying on steep slopes);
2. substantially reduce or increase the amount of surface water in a water body or result in a permanent adverse change to the movement of surface water, sufficient to produce a substantial change in the current, direction or amount of the water flow (i.e., new surface dams or diversions);
3. alter stream channel dimensions, profile, and/or stability (including removal of bank vegetation) to the point where significant increased erosion and sedimentation would result;
4. substantially restrict the flow capacities of a 100-year storm event due to placement of obstructions in the floodplain (for sediment removal) or the 50-year flood (for bank protection);
5. result in a significant reduction of the temporary storage capacity of a floodplain;
6. construct permanent habitable structures within a 100-year floodplain which would expose people or structures to a significant risk of loss injury or death due to flooding;
7. substantially deplete groundwater supplies such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted;
8. substantially interfere with groundwater recharge (i.e., substantially reduce permeable areas of an identified groundwater recharge area); or
9. result in a net increase in water demand and pumpage within an identified/designated overdrafted groundwater basin.

The project itself is designed to reduce flooding and the associated potential for flood-related hazards and/or property loss along the project portion of Matadero Creek. The proposed flood control improvements would not increase the peak stormwater runoff. Upon completion of the project, the one percent floodplain would be reduced along Matadero Creek within the project limits. This is a beneficial impact of the project.

- **The project would reduce the potential for flood-related hazards and/or property loss and would contain the one-percent floodplain within the creek channels. (Beneficial Impact)**

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[6] FEMA Flood Insurance Rate Map

Maintenance Impacts

Maintenance activities on Matadero Creek and the bypass channel will ensure that the channel can accommodate a 100-year flood event. Maintenance activities will have a beneficial impact in retaining that capacity over time.

- **Beneficial Impact.**

Hydrology, Drainage, and Flooding Issues not Associated with the Proposed Project

Implementation of the proposed project will not result in an increase in runoff rates or alter drainage patterns within the project area. In addition, the project will not alter the amount of surface water in any water body or change the direction of water flow. Furthermore, the project will not require the use of groundwater and will not interfere with groundwater recharge, since the bypass channel will have a hard bottom, but the sides of the channel will be permeable and will allow for adequate percolation. Lastly, the project will not increase water demand within Palo Alto or the Bay Area. Therefore, the proposed project will have no impact on hydrology, drainage, or flooding.

- **The proposed project will not have an adverse impact on hydrology, drainage, or flooding. (No Adverse Impact)**

3. Mitigation Measures for Hydrology, Drainage, and Flooding Impacts

- No mitigation required.

Conclusion: **The project would result in beneficial impacts on drainage and flooding in the project area. (Beneficial Impact)**

D. VEGETATION AND WILDLIFE

The following discussion is based upon a biological resources assessment of the project site conducted by *H.T. Harvey and Associates, Inc.* This biological assessment included a review of relevant background information, including the California Natural Diversity Data Base (CNDDB) and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California*, as well as field investigations. A copy of this report is provided in Appendix A of this EIR.

1. Existing Setting

Overview of Project Area

As described in **Section VI., D., Detailed Description of the Proposed Project** of this EIR, the Santa Clara Valley Water District (District) proposes to implement further flood protection measures along Matadero Creek between El Camino Real and the Palo Alto Flood Basin (refer to Figure 2). For the purposes of the following discussion of vegetation and wildlife, the "project site" is defined more broadly as the area surrounding a portion of the lower reach of Matadero Creek, which flows northeast into the Palo Alto Flood Basin (PAFB).

Biotic Survey and Mapping Methods

Reconnaissance-level field surveys to identify and map biotic habitats, evaluate botanical and wildlife resources, and assess the suitability of the study area to support special-status plant and animal species were conducted by *H.T. Harvey and Associates* staff biologists in November 1999 and January 2000. Information from previous reports provided background for surveys and was incorporated into this analysis, where applicable.

Biotic Habitats of the Project Site

The habitats that occur within the project area are described below. The total acreages of these habitat types within the entire project area are summarized in Table 4. Vascular plants observed on the project site and wildlife species observed, or expected to occur on the project site are listed in Appendix A. The biotic habitats on-site downstream of Highway 101, and near Louis Road, are shown on Figures 8 and 9, respectively.

Diked Coastal Salt Marsh

Vegetation: Approximately 0.60 acres of diked coastal salt marsh habitat occurs in the eastern part of the project site downstream of Highway 101 (refer to Figure 8). This habitat occurs within the PAFB (a highly managed floodwater retention basin) directly south of Matadero Creek. Saltwater from San Francisco Bay is conveyed into the flood basin through a series of controlled gates only during summer months.

This habitat type is dominated by species that are characteristic of tidal salt marshes including pickleweed (*Salicornia virginica*) and salt grass (*Distichlis spicata*). Species composition and cover were variable, ranging from dense, pure stands of pickleweed to generally open, low stands of pickleweed mixed with saltgrass and other disturbance- oriented species including sweet fennel (*Foeniculum vulgare*), beet (*Beta vulgaris*), fat hen (*Atriplex* sp.), and aster (*Aster* sp.).

TABLE 4
BIOTIC HABITAT ACREAGES

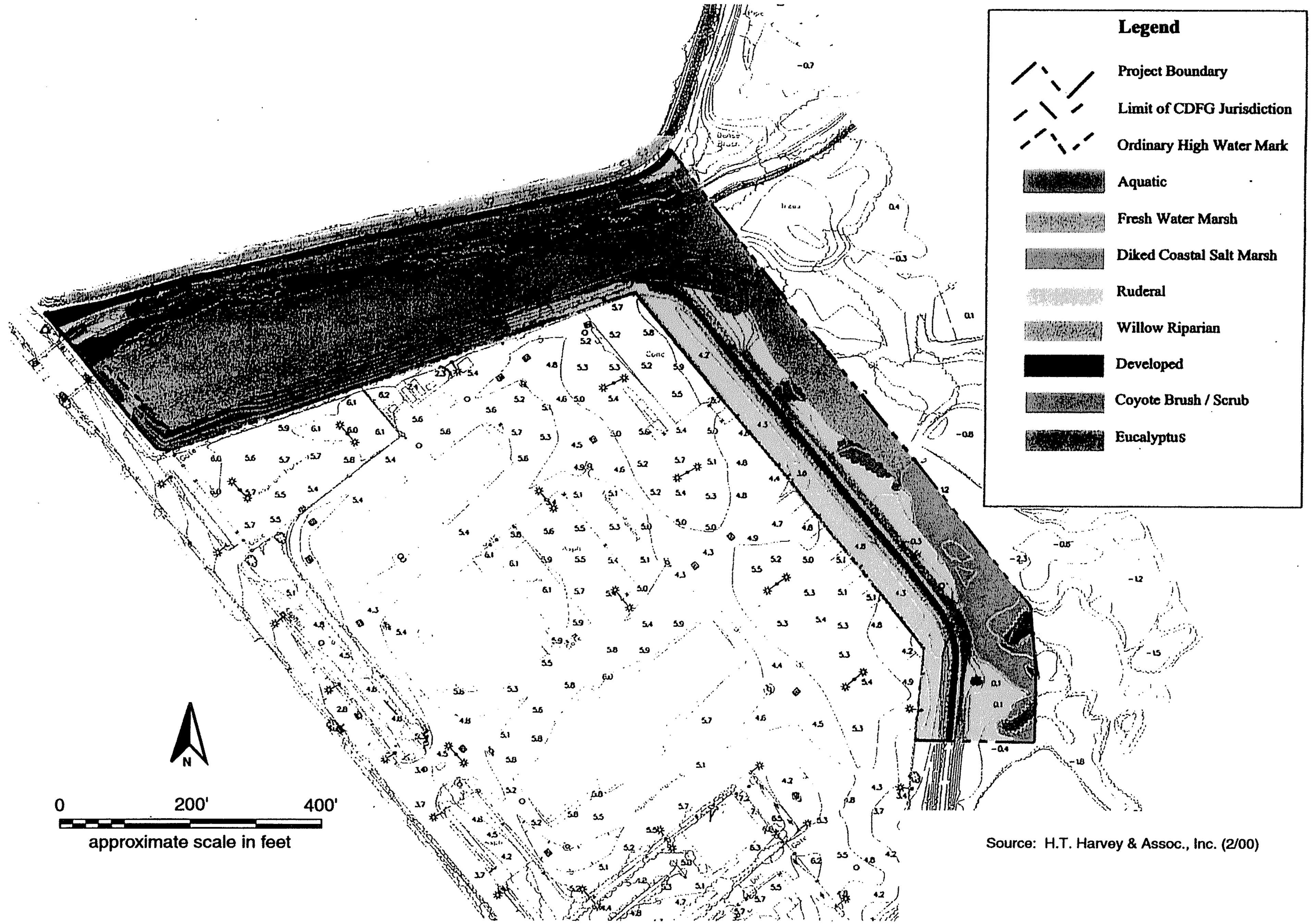
Habitat Type	Acres	Percent of Total
Diked Coastal Salt Marsh	0.60	7
Freshwater Marsh	0.48	6
Willow Riparian	3.18	39
Coyote Brush Scrub	0.22	3
Eucalyptus	0.52	6
Ruderal	2.10	26
Aquatic	0.60	7
Developed	0.40	5
TOTAL	**8.10**	**100**

Wildlife: Wildlife species associated with the diked coastal salt marsh habitat on the project site are generally species associated with structurally simple habitats, such as ruderal habitats, although some salt marsh-associated species are present. Reptiles such as the western fence lizard (*Sceloporus occidentalis*), racer (*Coluber constrictor*), and gopher snake (*Pituophis melanoleucus*) are expected to occur in this habitat. Few birds are expected to nest in this habitat, although the Savannah Sparrow (*Passerculus sandwichensis*) and Western Meadowlark (*Sturnella neglecta*) may nest here. A number of species of raptors, including the White-tailed Kite (*Elanus caeruleus*), Northern Harrier (*Circus cyaneus*), Red-tailed Hawk (*Buteo jamaicensis*), American Kestrel (*Falco sparverius*), and Barn Owl (*Tyto alba*) forage in this habitat during the breeding season, and Short-eared Owls (*Asio flammeus*) forage here during the nonbreeding season. The Loggerhead Shrike (*Lanius ludovicianus*) also forages in this habitat. Mammals expected to be present include the salt marsh harvest mouse (*Reithrodontomys raviventris*), California vole (*Microtus californicus*), house mouse (*Mus musculus*), and red fox (*Vulpes vulpes*).

Freshwater Marsh

Vegetation: Approximately 0.48 acres of freshwater marsh habitat occurs in the eastern part of the project site located downstream of Highway 101 (refer to Figure 8). This habitat occurs at the northwest edge of the Palo Alto Flood Basin directly south of Matadero Creek. A dense cover of broad-leaved cattail (*Typha latifolia*) dominates the freshwater marsh habitat with ruderal species including tall wheatgrass (*Elytrigia pontica* ssp. *pontica*) and poison hemlock (*Conium maculatum*) occupying the outer, slightly elevated habitat margins.

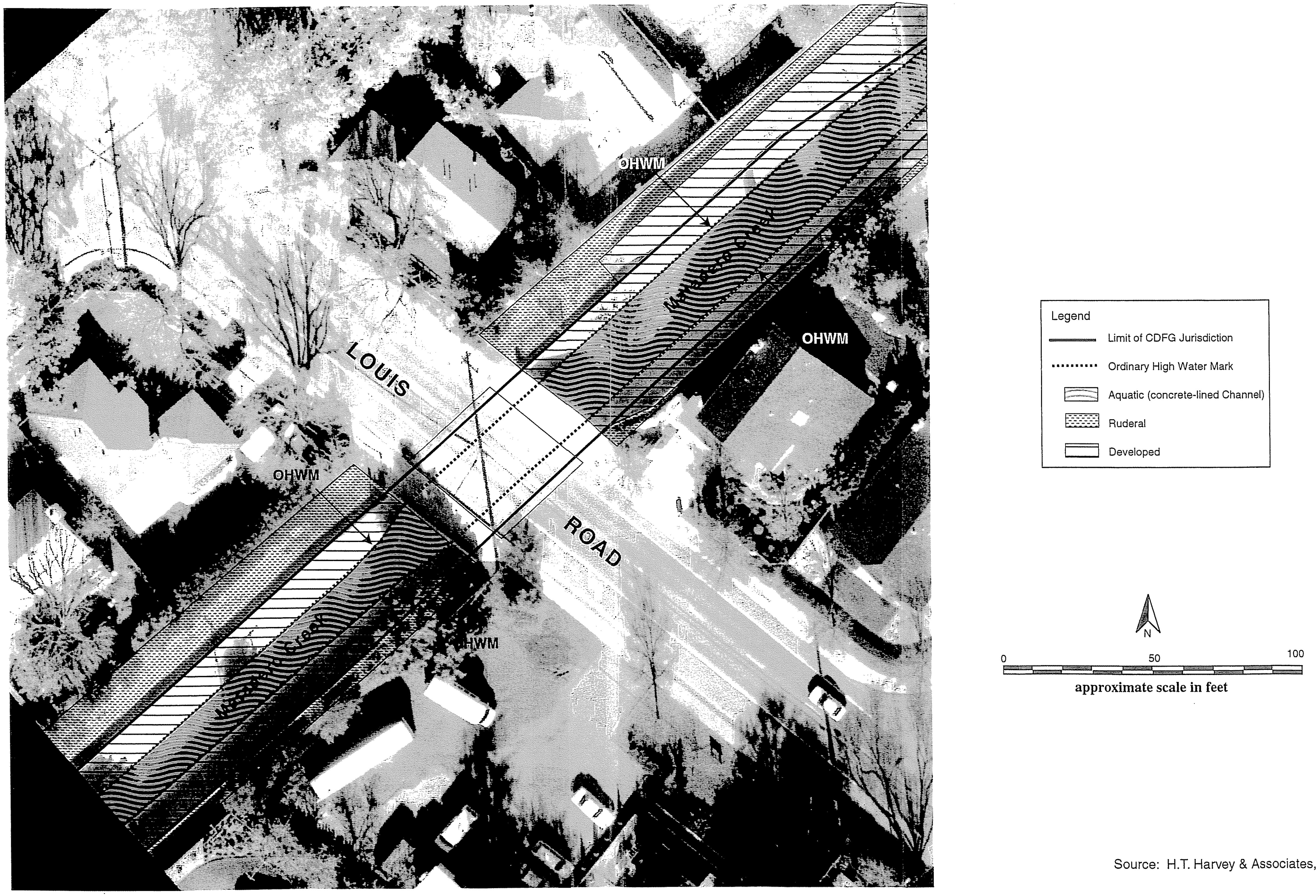
Wildlife: Western toads (*Bufo boreas*) and Pacific treefrogs (*Hyla regilla*) may breed in the freshwater marsh habitat on the site. Reptiles occurring here include the racer and common garter snake (*Thamnophis sirtalis*). Marsh-nesting bird species such as the Song Sparrow (*Melospiza melodia*), Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*), Marsh Wren (*Cistothorus palustris*), and Red-winged Blackbird (*Agelaius phoeniceus*) nest in this habitat, and species such as the Sora (*Porzana carolina*), Virginia Rail (*Rallus limicola*), and Lincoln's Sparrow (*Melospiza lincolnii*) may use this habitat for foraging and cover during the nonbreeding season. Mammals foraging in this habitat include the California vole, house mouse, raccoon (*Procyon lotor*), and opossum (*Didelphis virginiana*).



Source: H.T. Harvey & Assoc., Inc. (2/00)

BIOTIC HABITATS DOWNSTREAM OF HIGHWAY 101

FIGURE 8



Source: H.T. Harvey & Associates, Inc. (2/00)

BIOTIC HABITATS NEAR LOUIS ROAD

FIGURE 9

Willow Riparian

Vegetation: Approximately 3.18 acres of willow riparian habitat occurs in the eastern region of the project site located downstream of Highway 101 (refer to Figure 8). This habitat occurs on both banks of Matadero Creek and is well developed along the south bank. Riparian habitat extends from the east side of the East Bayshore Road Bridge crossing, extending south and east along Matadero Creek and into the PAFB. A narrow band of willow riparian habitat that is less developed occurs along the north bank of this section of Matadero Creek. The riparian habitat consists primarily of a semi-closed and moderately well developed stand of mature, sub-adult trees dominated by red willow (*Salix laevigata*) that grow to a maximum height of approximately 25-35 feet. Several Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), California buckeye (*Aesculus californica*), and Northern California black walnut trees (*Juglans californica* var. *hindsii*) occur as associate species within this willow dominated riparian habitat. The Northern California black walnut is considered by the California Native Plant Society to be a special-status tree species with only three native stands known to still exist (Skinner and Pavlik 1994), although the tree is now widely naturalized in California. Associate shrub species identified within the riparian understory include California blackberry (*Rubus ursinus*), and blue elderberry (*Sambucus mexicana*). A groundcover layer of herbaceous freshwater emergent species including willow dock (*Rumex salicifolius*) and watercress (*Rorripa nasturtium-aquaticum*) was observed beneath the willow riparian canopy directly adjacent to the northeastern corner of the MSC. Additional species identified within the riparian habitat understory include California mugwort (*Artemisia douglasiana*), common yarrow (*Achillea milifolium*), and greater periwinkle (*Vinca major*). A somewhat continuous and dominant patch of the non-native invasive giant reed (*Arundo donax*) was observed directly adjacent to the east side of East Bayshore Road on the south side of Matadero Creek.

Wildlife: The wildlife habitat value of the willow riparian vegetation along lower Matadero Creek immediately downstream from Highway 101 is somewhat limited by its proximity to Highway 101 and the MSC, its young age, and the lack of more mature riparian vegetation nearby. Nevertheless, it represents fairly high-quality wildlife habitat due to the dense nature of the vegetation, the presence of a well-developed understory, and its bayside location. Amphibians and reptiles expected to occur here include the Pacific treefrog, western fence lizard, southern alligator lizard (*Gerrhonotus multicarinatus*), racer, and gopher snake. The diversity of nesting birds is limited by the lack of very tall, large-diameter trees, although a number of bird species do breed here. These include the White-tailed Kite, Mourning Dove (*Zenaida macroura*), Anna's Hummingbird (*Calypte anna*), Bushtit (*Psaltriparus minimus*), Bewick's Wren (*Thryomanes bewickii*), California Towhee (*Pipilo crissalis*), Song Sparrow, Lesser Goldfinch (*Carduelis psaltria*), American Goldfinch (*Carduelis tristis*), and others. Many species of migrants, including the Allen's Hummingbird (*Selasphorus sasin*), Pacific-slope Flycatcher (*Empidonax difficilis*), Warbling Vireo (*Vireo gilvus*), Swainson's Thrush (*Catharus ustulatus*), Black-headed Grosbeak (*Pheucticus melanoleucus*), House Wren (*Troglodytes aedon*), Willow Flycatcher (*Empidonax traillii*), Western Tanager (*Piranga ludoviciana*), Orange-crowned Warbler (*Vermivora celata*), Wilson's Warbler (*Wilsonia pusilla*), and Yellow Warbler (*Dendroica petechia*) occur here during migration. During winter, large numbers of Lincoln's, White-crowned (*Zonotrichia leucophrys*), Golden-crowned (*Zonotrichia atricapilla*), and Fox (*Passerella iliaca*) sparrows, as well as Ruby-crowned Kinglets (*Regulus calendula*), Hermit Thrushes (*Catharus guttatus*), and Yellow-rumped Warblers (*Dendroica coronata*), are present in this riparian habitat. Mammals expected to occur here include the California vole, Botta's pocket gopher, deer mouse (*Peromyscus maniculatus*), house mouse, opossum, raccoon, and striped skunk (*Mephitis mephitis*).

Coyote Brush Scrub

Vegetation: Approximately 0.22 acres of coyote brush (*Baccharis pilularis*) scrub habitat occurs in the eastern region of the project site located downstream of Highway 101 (refer to Figure 8). This habitat occurs south of Matadero Creek. The vegetation is comprised of monospecific patches of coyote brush. On the project site, coyote brush scrub occupies the slightly elevated and disturbed ecotonal margins between coastal salt marsh and freshwater marsh habitats and is often closely associated with upland ruderal habitat.

Wildlife: Many of the wildlife species associated with the riparian habitats occasionally forage or take cover in the coyote brush scrub on the project site, although most species make only limited use of this habitat. Reptile species occurring here somewhat frequently include the western fence lizard, gopher snake, and racer. The California Towhee and Lesser Goldfinch may nest in this habitat, and other species, such as the Bushtit, White-crowned Sparrow, Golden-crowned Sparrow, and others are expected to forage here. Mammals expected to occur here include the California vole, Botta's pocket gopher, deer mouse, house mouse, opossum, raccoon, and striped skunk.

Eucalyptus

Vegetation: Approximately 0.52 acres of eucalyptus habitat occurs in the eastern region of the project site located downstream of Highway 101 (refer to Figure 8). This habitat occurs south of Matadero Creek, and is dominated by approximately 50 mature blue gum (*Euclayptus globulus*) and silver-leaved (*Eucalyptus pulverulenta*) eucalyptus trees growing up to 50 feet in height. The trees are planted in several rows approximately 20 feet wide along the northwestern edge of the MSC directly adjacent to the east side of East Bayshore Road. This eucalyptus habitat forms a closed overstory canopy that overlaps the willow riparian canopy along the south side of Matadero Creek. Eucalyptus trees are a non-native species and are considered invasive.

Wildlife: The eucalyptus trees along the edge of the MSC are used as foraging habitat by most of the bird species expected to occur in the adjacent riparian habitat. Although most of these species are expected to be less common in the eucalyptus trees than in the native riparian habitat, a few, such as the Anna's Hummingbird and Yellow-rumped Warbler, are common in the eucalyptus. Bird and mammal species associated with low, dense vegetation are expected to be rare in, or absent from, the eucalyptus trees.

Ruderal

Vegetation: Approximately 2.10 acres of ruderal, or disturbed habitat occurs in the eastern region of the project site located downstream of Highway 101 (refer to Figure 8). The majority of ruderal habitat occurs along the east and west sections of the gravel maintenance road situated south of Matadero Creek, and directly adjacent to the eastern section of the MSC. Small patches of ruderal habitat also occur along the north bank of Matadero Creek.

Approximately 0.03 acres of ruderal habitat occurs in the western region of the project site located upstream of Highway 101 adjacent to the east and west sides of the Louis Road/Matadero Creek bridge crossing (refer to Figure 9). Ruderal habitat includes the dirt maintenance road located on the north side of the cement-lined Matadero Creek channel both upstream and downstream of the Louis Road Bridge crossing.

Ruderal habitat located in both the east and west regions of the project site is dominated by a mixture of invasive non-native annual grasses and forbs that are common to the Santa Clara Valley. Plant species include tall wheatgrass, Mediterranean barley (*Hordeum hystrix*), smilo grass (*Piptatherum miliaceum*), sweet fennel (*Foeniculum vulgare*), yellow star-thistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), bristly ox-tongue (*Picris echioides*), wild radish (*Raphanus sativus*), and cheeseweed (*Malva parviflora*).

Wildlife: Wildlife species expected to occur in the ruderal habitat on the project site are generally similar to those present in the coyote brush scrub, consisting primarily of species relying on adjacent habitats for most of their foraging and cover.

Aquatic

Vegetation: Approximately 0.60 acres of aquatic habitat occurs in the eastern region of the project site located downstream of Highway 101 (refer to Figure 8). This habitat occurs within Matadero Creek and also south of the creek in the PAFB. The deep-water aquatic habitat in Matadero Creek supports small and intermittent patches of freshwater emergent vegetation along the banks of the creek. Freshwater emergent species include watercress and willow dock. Small intermittent patches of pickleweed occur within aquatic habitat south of Matadero Creek in the PAFB.

Approximately 0.06 acres of aquatic habitat occurs in the western region of the project site located upstream of Highway 101 within the cement-lined section of Matadero Creek on the east and west side of the Louis Road bridge crossing (refer to Figure 9). Small patches of freshwater emergent vegetation including watercress and willow dock was identified within aquatic habitat along both the north and south side of the creek on the east and west sides of the Louis Road bridge crossing.

Wildlife: Matadero Creek itself contains several species of fish, possibly including the steelhead rainbow trout (*Oncorhynchus mykiss*). Pied-billed Grebes (*Podilymbus podiceps*), American Coots (*Fulica Americana*), and Common Moorhens (*Gallinula chloropus*) nest in emergent vegetation, while Mallards (*Anas platyrhynchos*), Gadwalls (*Anas strepera*), Black-crowned Night-Herons (*Nycticorax nycticorax*), and Double-crested Cormorants (*Phalacrocorax auritus*) forage in the creek. The aquatic habitats in the pond and adjacent marsh on the southeast side of the MSC are used by nesting waterfowl and foraging shorebirds; this area is an important foraging area for numerous species of waterfowl, shorebirds, gulls, terns, and egrets year-round.

Developed

Vegetation: Approximately 0.40 acres of developed habitat occurs in the eastern region of the project site located downstream of Highway 101 (refer to Figure 8). This habitat occurs along the north side of Matadero Creek and to the south of the creek, east of the MSC fenceline. Developed habitat includes the two gravel maintenance roads. One road parallels the north side of Matadero Creek, and the second road located south of the creek parallels the east side of the MSC. The road surfaces are essentially devoid of vegetation.

Approximately 0.04 acres of developed habitat occurs in the western region of the project site located upstream of Highway 101 (refer to Figure 9). Developed habitat in this section of the project site includes that portion of the cement-lined channel bed and banks of Matadero Creek on the east and west side of the Louis Road Bridge crossing. These areas are essentially devoid of vegetation.

Wildlife: Few wildlife species are expected to occur in the developed habitats. Most of the wildlife species expected to occur in the developed habitat on the project site are generally similar to those present in the ruderal/*Baccharis* scrub habitats, consisting primarily of species relying on adjacent habitats for most of their foraging and cover. In addition, the Killdeer (*Charadrius vociferus*) may nest on the gravel road adjacent to the MSC.

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES

Information concerning threatened, endangered, or other special-status species that may occur in the area was collected from several sources and reviewed by H.T. Harvey & Associates biologists. The sources consulted included the California Department of Fish and Game's (CDFG) Natural Diversity Data Base (CNDDB 2000), California Wildlife Habitat Relationships species notes (CDFG 1988, 1990a, 1990b), and miscellaneous information available through the U.S. Fish and Wildlife Service (USFWS), CDFG, and technical publications. The California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994) and *The Jepson Manual* (Hickman 1993) supplied information regarding the distribution and habitats of vascular plants in the vicinity.

A search of published accounts of these species was conducted for the USGS Palo Alto and Mountain View quadrangles, in which the project site occurs, and for surrounding quadrangles, including Cupertino, San Jose West, Milpitas, Mindego Hill, La Honda, Woodside, San Mateo, Redwood Point, Newark, and Niles using CNDDB Rarefind reports (2000). All species listed as occurring in Santa Clara and San Mateo counties and present on CNPS Lists 1A, 1B, 2, 3 or 4 were reviewed.

Special-Status Species Regulations Overview

Federal and State endangered species legislation gives several plant and animal species known to occur in the vicinity of the project site special status. In addition, State resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents, have identified as sensitive some species occurring in the vicinity of the project site. Such species are referred to collectively as "species of special status".

Provisions of the Federal Endangered Species Act (FESA) protect federally listed threatened and endangered species and their habitats from unlawful take. "Take" under FESA includes activities such as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The USFWS's regulations define harm to include some types of "significant habitat modification or degradation". Activities that may result in "take" of individuals are regulated by the USFWS.

Provisions of California's Endangered Species Act (CESA) protect state-listed threatened and endangered species. CDFG regulates activities that may result in "take" of individuals. Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code. The CDFG, however, has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification..."

The CDFG has also produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists." Species on these lists either are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They receive special attention during the environmental review process, but do not have statutory protection.

Special-Status Plant Species

Reconnaissance-level field surveys were conducted on 26 January 2000 for habitats capable of supporting special-status plants on site. The survey method involved hiking the entire project area in a pattern that allowed all portions of the project site to be generally observed.

When assessing the site's potential habitat suitability for special-status plant species, several factors are generally taken under consideration, including: 1) the proximity and date of known occurrences, 2) the presence and ecological condition of habitats on-site, 3) past and current land use practices, 4) the existence of known associate species, and 4) direct observation of plants as a result of optimally-timed, species-specific surveys. The legal status and likelihood of special-status plant species occurrence on the project site are given in Table 5.

Several special-status plant species are known to occur in the region of the project site. Most of these species, however, occur in habitats that are not currently present on site such as vernal pools, valley and foothill grassland, coastal prairie, coastal dunes, coastal scrub, chaparral, cismontane woodland, northcoast coniferous forest, closed-cone coniferous forest, lower montane coniferous forest, and broadleaf upland forest.

Four special-status plant species were identified as having the greatest potential to occur on site. These species include: sea blite (*Suaeda californica*, federally-listed endangered), marsh gumplant (*Grindelia stricta* var. *angustifolia*, CNPS 4), Congdon's tarplant (*Hemizonia parryi* ssp. *condonii*, CNPS 1B), and hairless popcorn flower (*Plagiobothrys glaber*, CNPS 1B. These four plants and their suitable habitat were the primary target species searched for during the reconnaissance-level survey and are described below in detail.

Federal or State Endangered or Threatened Species, or Proposed for Federal or State Status

Sea blite (*Suaeda californica*). Federal listing status: Endangered; State listing status: None; CNPS List 1B Sea blite is a slightly woody evergreen shrub found in coastal salt marshes. The blooming period ranges from July to October. The only known extant population of sea blite occurs at Morro Bay. Previously, it was prevalent around San Francisco Bay. The only recorded occurrence of this species in Santa Clara County was reported from the Palo Alto Yacht harbor in 1971 (Rarefind 2000). This species is considered by CNPS (1994) to be extirpated from the San Francisco Bay area.

State Protected or CNPS Lists

Marsh gumplant (*Grindelia stricta* var. *angustifolia*) Federal listing status: None; State listing status: None; CNPS List 4 Marsh gumplant occurs in salt marshes bordering San Francisco, San Pablo and Suisun Bays. This shrubby species often grows on levee slopes, next to tidal sloughs and on slightly elevated ground within marsh plains.

During the survey effort, this species was identified in the southeastern region of the project site downstream of Highway 101. The population is located south of Matadero Creek and was observed growing along both the east and west side of the gravel maintenance road directly adjacent to the east side of the MSC compound in the southern section of the project site. Several hundred individuals of this disturbance-oriented woody perennial subshrub were documented. Numerous individuals of the plant were also observed scattered within ruderal habitat adjacent to the road, and along the fringe of coastal salt marsh habitat located in the southern section of the project site.

Congdon's tarplant (*Hemizonia parryi* ssp. *congdonii*) Federal listing status: None; State listing species: None; CNPS List 1B Congdon's tarplant occurs in estuary margins of marshes and swamps and vernally mesic areas of valley and foothill grassland, on alkaline soils. The flowering period for this species occurs from June through November. This species has been nearly extirpated from the Bay Area; extant populations are known from Monterey, San Luis Obispo, and possibly Santa Clara counties. Historic populations were recorded north of Milpitas and along the lower end of San Francisco Bay from Sunnyvale to Alviso (Rarefind 2000). Congdon's tarplant was rediscovered in Santa Clara County in 1998 in similar habitat (Roxanne Bitman, pers. comm.).

Hairless popcornflower (*Plagiobothrys glaber*) Federal listing status: None; State listing status: None; CNPS List 1A This succulent annual was historically found in coastal salt marsh habitats, particularly along the southern shore of San Francisco Bay, and in alkaline flats in valleys of Santa Clara County. The blooming period ranges from April to May. The last known population of the plant in this area was located northeast of the junction of Alvarado Boulevard and the Nimitz Freeway in Newark. This species is presumed, by CNPS, to be extinct.

Special-Status Wildlife Species

Reconnaissance-level field surveys for special-status animal species were conducted by Dr. Steve Rottenborn, who hiked the entire study area on 4 November 1999 and on numerous prior occasions. Field notes from previous visits to the study area were checked. Lower Matadero Creek and the adjacent Emily Renzel wetlands and PAFB are well covered by birders, and known records of bird species reported from the project vicinity by other birders were also reviewed.

The special-status animal species that occur in the vicinity in habitats similar to those found on the project site, as well as the legal status and likelihood of occurrence of these species on-site, are given in Table 5. Expanded descriptions are included below only for those species for which potentially suitable habitat occurs on the project site, for which specific surveys were conducted, or for which the resource agencies have expressed particular concern.

TABLE 5

SPECIAL-STATUS PLANT AND ANIMAL SPECIES, THEIR STATUS, AND POTENTIAL OCCURRENCE ON THE PROJECT SITE

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Federal or State Endangered Species			
Sea blite *(Suaeda californica)*	FE, CNPS 1B	Coastal salt marshes and swamps	Populations have historically been found in the vicinity of the project site. Suitable habitat is present on site. Surveys are warranted.
Sacramento River Winter-run Chinook salmon (*Oncorhynchus tshawytscha*)	FE, SE	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	No winter-run chinook spawn in South S.F. Bay-area streams, and no chinook are expected to spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. Presumed absent.
Sacramento River Spring-run Chinook salmon (*Oncorhynchus tshawytscha*)	FT	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	No spring-run chinook spawn in South S.F. Bay-area streams, and no chinook are expected to spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. Presumed absent.
San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)	FE, SE	Wetlands, especially those dominated by herbaceous wetland vegetation, on the San Francisco Peninsula.	Site is outside the range of this subspecies; presumed absent.
American Peregrine Falcon (*Falco peregrinus anatum*)	SE, SP	Nests on cliffs or very high bridges and buildings, forages in a variety of habitats.	Rare to occasional forager on site; no suitable breeding habitat on site.
California Clapper Rail *(Rallus longirostris obsoletus)*	FE, SE, SP	Salt marsh habitat dominated by pickleweed and cordgrass.	No suitable habitat on or near site; presumed absent.
California Least Tern (*Sterna antillarum brownii*)	FE, SE	Nests primarily along the coast on bare or sparsely vegetated, flat substrates.	The pond just south of the MSC could provide suitable foraging habitat, although there are no known records of Least Terns foraging in this pond, and this pond will not be impacted directly by the project. No nesting habitat is present on or near the site.
Willow Flycatcher (*Empidonax traillii*)	FE (*extimus*) SE (*brewsteri*)	Breeds locally in riparian habitats in mountains and southern deserts.	Uncommon migrant; those occurring on site are probably not of the listed races.
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)	FE, SE	Salt marsh habitat dominated by pickleweed.	Potential habitat is present on the portions of the site having pickleweed at the edges of the Palo Alto flood control basin. May be present in these areas.
Federal or State Threatened or Rare Species			
Steelhead Rainbow Trout (Oncorhynchus mykiss)	FT (Central Calif. Coast ESU)	An anadromous form of rainbow trout that migrates upstream from the Pacific or the S. F. Bay to spawn. Prefers streams with dense canopy.	Does not spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. However, it is possible that post-breeding adults or juveniles from other South Bay streams could forage in lower Matadero Creek.
California Red-legged Frog (*Rana aurora draytonii*)	FT, SP, CSSC	Streams, freshwater pools, and ponds with overhanging vegetation.	No known occurrences along lower Matadero Creek or elsewhere in project vicinity, and likely absent from site. Although it is possible that an individual could be washed to the project site from breeding populations far upstream, such an event is expected to occur very rarely (if at all), and no red-legged frog dispersing to the project site is expected to linger on-site.
California Black Rail (*Laterallus jamaicensis coturniculus*)	ST	Breeds in a variety of wetland types; in San Francisco Bay area, nests in pickleweed marshes.	Marginal habitat present on the portions of the site dominated by diked salt-marsh habitat at the edges of the Palo Alto flood control basin, although this species has not been recorded in the flood control basin or elsewhere in the immediate project vicinity. No confirmed breeding records for Santa Clara County. Presumed absent.

TABLE 5

SPECIAL-STATUS PLANT AND ANIMAL SPECIES, THEIR STATUS, AND POTENTIAL OCCURRENCE ON THE PROJECT SITE

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	FT, CSSC	Nests on sandy beaches on marine and estuarine shores.	The pond just south of the MSC could provide marginal foraging habitat, although there are no known records of this species foraging in this pond, and this pond will not be impacted directly by the project. No nesting habitat is present on or near the site.
Federal or State Candidate Species			
Fall-run Chinook salmon (*Oncorhynchus tshawytscha*)	FC	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	Does not spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. However, it is possible that juveniles from other South Bay streams could forage in lower Matadero Creek.
California Tiger Salamander (*Ambystoma californiense*)	FC, CSSC	Vernal or temporary pools in annual grasslands, or open stages of woodlands.	No suitable habitat on site; presumed absent.
California Species of Special Concern			
Foothill Yellow-legged Frog (*Rana boylii*)	CSSC	Rocky streams in a variety of habitats. Found in coast ranges.	No suitable habitat on site; presumed absent.
Western Pond Turtle (*Clemmys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	Although it is possible that an individual could disperse to the project site from breeding populations far upstream, such an event is expected to occur rarely, and any pond turtles that might disperse to the project site are not expected to linger or to breed successfully on-site.
American White Pelican (*Pelecanus erythrorhynchos*)	CSSC	Forages on fish found in freshwater lakes and rivers, nests on islands in lakes.	The pond just south of the MSC provides suitable foraging habitat, although this pond will not be impacted directly by the project. Does not nest in S.F. Bay area.
Double-crested Cormorant (*Phalacrocorax auritus*)	CSSC	Colonial nester on coastal cliffs, offshore islands, electrical transmission towers, and along interior lake margins. Feeds on fish.	Forages in Matadero Creek and in the pond just south of the MSC, although no nesting habitat is present on or immediately adjacent to the site.
Northern Harrier (*Circus cyaneus*)	CSSC	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.	Breeds and forages in the Palo Alto flood control basin. Expected to forage on-site occasionally, and could possibly breed near (but not in) impact areas.
Sharp-shinned Hawk (*Accipiter striatus*)	CSSC	Nests in dense woodlands, forages in many habitats in winter and migration.	Occurs on-site only as a migrant and winter visitor.
Cooper's Hawk (*Accipiter cooperi*)	CSSC	Nests in woodlands, forages in many habitats in winter and migration.	Although expected to occur primarily as a migrant and winter visitor, potential breeding habitat is present in the riparian woodland on-site, and this species could possibly nest on-site.
Golden Eagle (*Aquila chrysaetos*)	CSSC	Breeds on cliffs or in large trees or structures, forages in open habitats.	Possibly a rare forager over site. Not expected to forage on-site frequently. No breeding habitat on or near site.
Merlin (*Falco columbarius*)	CSSC	Uses many habitats in winter and migration.	Occasional forager during migration and winter.
Prairie Falcon (*Falco mexicanus*)	CSSC	Breeds on cliffs or in large trees or structures, forages in open habitats.	Possibly a rare forager over site. Not expected to forage on-site frequently. No breeding habitat on or near site.
Long-billed Curlew (*Numenius americanus*)	CSSC	Forages in a variety of open habitat types from marshes and mudflats to pastures and dry agricultural fields	The pond just south of the MSC provides suitable foraging habitat, although this pond will not be impacted directly by the project. Does not nest in S.F. Bay area.

TABLE 5

SPECIAL-STATUS PLANT AND ANIMAL SPECIES, THEIR STATUS, AND POTENTIAL OCCURRENCE ON THE PROJECT SITE

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
California Gull (*Larus californicus*)	CSSC	Nests on inland lakes and in salt ponds around S. F. Bay.	The pond just south of the MSC provides suitable roosting and foraging habitat, although this pond will not be impacted directly by the project. No breeding habitat on or near site.
Burrowing Owl (*Athene cunicularia*)	CSSC	Nests and forages in flat, open habitats, such as grasslands and ruderal areas, having suitable nesting and roosting burrows.	Habitat on-site marginal, at best, for this species due to the paucity of ground squirrels and suitable open upland areas with short vegetation. Present at the nearby Palo Alto landfill, but expected to occur rarely, if at all, on-site.
Vaux's Swift (*Chaetura vauxi*)	CSSC	Breeds in north coast and montane coniferous forests; forages aerially.	Occasional migrant, foraging over site.
California Horned Lark (*Eremophila alpestris actia*)	CSSC	Short-grass prairie, annual grasslands, coastal plains, open fields.	No suitable habitat on-site; presumed absent.
Loggerhead Shrike (*Lanius ludovicianus*)	CSSC	Nests in tall shrubs and dense trees, forages in grasslands, marshes, and ruderal habitats.	Suitable nesting and foraging habitat present on-site; probably breeds on-site.
California Yellow Warbler (*Dendroica petechia brewsteri*)	CSSC	Breeds in riparian woodlands, particularly those dominated by cottonwoods and willows.	Foraging habitat and marginal breeding habitat present on-site. Breeding unlikely (no recent breeding records from site vicinity).
Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Breeds primarily in fresh and brackish marshes in tall grass, tules, willows; uses salt marshes more in winter.	Breeds on-site in riparian and tall freshwater marsh vegetation, and in dense herbaceous ruderal vegetation.
Alameda Song Sparrow (*Melospiza melodia pusillula*)	CSSC	Breeds in salt marsh, primarily in marsh gumplant and cordgrass along channels.	Song Sparrows nest in riparian and tall freshwater marsh vegetation on-site, although it is not known whether those present on-site are *pusillula*.
Tricolored Blackbird (*Agelaius tricolor*)	CSSC	Breeds near fresh water in dense emergent vegetation.	Marginal breeding habitat on-site; not known to nest in project vicinity. May occasionally forage on-site, particularly during nonbreeding season.
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves, mine tunnels, and buildings in a variety of habitats.	Possibly a rare forager over site; no roosting habitat on-site.
California Mastiff Bat (*Eumops perotis californicus*)	CSSC	Forages over many habitats, requires tall cliffs or buildings for roosting.	Possibly a rare forager over site; no roosting habitat on-site.
Pallid Bat (*Antrozous pallidus*)	CSSC	Forages mostly over open habitats, requires rocky crevices, tree cavities, mines, caves or buildings for maternity roosts. Night roosts in/on buildings, trees, rocky areas.	Possibly a rare forager over site; no roosting habitat on-site.
San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)	CSSC	Found in hardwood forests and oak riparian habitat.	No dens observed on-site. Site isolated from occupied habitat by urbanization. Presumed absent.
Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*)	CSSC	Medium high marsh 6-8 feet above sea level with abundant driftwood and pickleweed.	Potential habitat is present on the portions of the site dominated by diked salt-marsh habitat at the edges of the Palo Alto flood control basin. May be present in these areas.
State Protected Species or CNPS Species			
Marsh gumplant (*Grindelia stricta* var. *angustifolia*)	CNPS 4	Coastal salt marshes and swamps	Marsh gumplant detected on site. Detailed census and mapping surveys are warranted.
Congdon's tarplant (*Hemizonia parryi* ssp. *condonii*)	CNPS 1B	Estuary margins in marshes and swamps, vernally mesic areas of valley and foothill grasslands, and vernal pools	Populations documented near the project site in 1998. Suitable habitat is present on site. Surveys are warranted.
Hairless popcorn flower (*Plagiobothrys glaber*)	CNPS 2	Alkaline meadows and coastal salt marshes and swamps.	Populations have historically been found in the vicinity of the project site. Suitable habitat is present on site. Surveys are warranted.
White-tailed Kite (*Elanus caeruleus*)	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	Suitable nesting and foraging habitat present on-site; probably breeds on or near site.

TABLE 5

SPECIAL-STATUS PLANT AND ANIMAL SPECIES, THEIR STATUS, AND POTENTIAL OCCURRENCE ON THE PROJECT SITE

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Ringtail (*Bassariscus astutus*)	SP	Prefers riparian and heavily wooded habitats near water.	No suitable habitat on-site. Site isolated from occupied habitat by urbanization. Presumed absent.

*SPECIAL-STATUS SPECIES CODE DESIGNATIONS

FE = Federally listed Endangered
FT = Federally listed Threatened
SE = State listed Endangered
SR= State listed Rare
ST = State listed Threatened
FC = Federal Candidate. Sufficient biological information to support a proposal to list the species as Endangered or Threatened
CSSC = California Species of Special Concern
SP = State Protected Species
CNPS 1B = Plants considered by CNPS to be rare, threatened, or endangered in California, and elsewhere
CNPS 2 = Plants considered by CNPS to be rare, threatened, or endangered in California, but more common elsewhere
CNPS 3 = Plants about which CNPS needs more information; a watch list
CNPS 4= Plants of limited distribution; a watch list

Federal or State Endangered or Threatened Species

Steelhead Rainbow Trout (*Oncorhynchus mykiss*) Federal listing status: Threatened; State listing status: Species of Special Concern The steelhead rainbow trout is an anadromous form of rainbow trout (i.e., it migrates upstream from the ocean/bay to spawn). Young steelhead usually remain in freshwater streams one to two years before migrating to the ocean. They typically grow rapidly for one to two years in the ocean before returning to freshwater streams to spawn. Steelheads do not necessarily die after spawning as salmon do, and they may survive to spawn two or three seasons. Steelhead trout are generally found in clear, cool, perennial sections of relatively undisturbed streams. Preferred streams typically support dense canopy cover but are usually free of rooted or aquatic vegetation. Gravel substrates are the optimum spawning habitat for these trout. Steelhead usually cannot survive long in pools or streams with water temperatures above 70°F for juveniles and adults and above 58°F for developing embryos.

Steelhead are not expected to spawn in Matadero Creek due to the long reaches of unvegetated, channelized, concrete-lined channel and culverted sections of this stream immediately upstream from the site. In addition, no suitable spawning habitat is present within the heavily sedimented reaches of this stream within the project area. However, it is possible that steelhead spawning elsewhere in the south San Francisco Bay area could enter the PAFB through the gates in the northeast corner of the basin, and that adults and juveniles could occur on occasion in the lower reaches of Matadero Creek.

California Red-legged Frog (*Rana aurora draytonii*) Federal listing status: Threatened; State listing status: State Protected and Species of Special Concern The USFWS listed the California red-legged frog as federally threatened on May 23, 1996 (61 Fed. Reg. 25813). The red-legged frog is a medium-sized frog with reddish-colored legs. This species is generally restricted to riparian habitats in California and northern Baja California. Red-legged frogs prefer deep, quiet pools (more than 3 feet deep) in creeks, rivers, or lakes below 1,000 meters in elevation (about 3,000 feet). Habitat requirements include fresh emergent or dense riparian vegetation, especially willows adjacent to shorelines. Red-legged frogs can survive in seasonal bodies of water that are dry for short periods if there is a permanent water body or dense vegetation stands nearby. The adults are normally active at night and breed in ponds and creeks or in marshes during the late winter or early spring after waters recede. Females attach eggs in a single cluster to a vegetation brace just under the surface of the water. The eggs hatch in just over a week and the resulting larvae feed on plant and animal material on the bottom of the pond. It takes at least four months for the larvae to metamorphose into juvenile frogs.

Although red-legged frogs breed on upper Matadero Creek more than three miles upstream from the project site, this species is not expected to occur within the project area, except perhaps on very rare occasions when individuals are washed to the site from breeding areas far upstream. The site is separated from suitable habitat by long reaches of unvegetated, channelized, concrete-lined channel and culverted sections of the stream, which provide neither breeding habitat nor cover sufficient to enable a frog to disperse to the project site (except possibly during floods). There are no recent red-legged frog records from immediate bayside areas in the vicinity of the project site, and therefore the project site is isolated from red-legged frog populations. Furthermore, the abundance of predators such as raccoons, feral cats, bullfrogs, and fish in the project vicinity, as well as the salinity in some parts of the project area, are expected to preclude the survival and successful reproduction of any red-legged frogs that might be washed onto the site during flood events.

San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*) Federal listing status: Endangered; State listing status: Endangered This species is found in wetland habitats, particularly marshy borders of lakes and ponds, on the northern San Francisco Peninsula. In these habitats it finds cover in dense wetland-obligate plants and feeds primarily on the California red-legged frog and the Pacific treefrog. Populations of the San Francisco garter snake have declined as a result of habitat loss and population declines in its prey species, particularly the red-legged frog. Known populations of the San Francisco garter snake are very localized in distribution, and this subspecies' range is not known to extend south along the edge of the bay as far as Matadero Creek. Given the known range of this subspecies and the presence of potential barriers to dispersal (most notably Highway 101 adjacent to the site), this species is presumed absent from the site.

California Clapper Rail (*Rallus longirostris obsoletus*) Federal listing status: Endangered; State listing status: Endangered The California Clapper Rail is resident in tidal salt marshes in the vicinity of the San Francisco Bay. It nests from early March through August in the tallest vegetation along tidal sloughs, particularly in California cordgrass (*Spartina foliosa*) and marsh gumplant (*Grindelia stricta*). This species forages along the edges of tidal sloughs, foraging less frequently in shorter marsh vegetation, such as that dominated by pickleweed. Due to the loss of salt marsh habitat around the San Francisco Bay, populations of this species have declined considerably.

Fully tidal salt-marsh habitat is absent from the project site, and there is no cordgrass-dominated habitat on or immediately adjacent to the site. Despite good coverage of lower Matadero Creek, the Emily Renzel wetlands, and the PAFB by birders, no Clapper Rails have been recorded in the immediate project vicinity. Therefore, this species is presumed absent from the site.

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*) Federal listing status: Endangered; State listing status: Endangered, Protected The salt marsh harvest mouse is found only in saline wetlands of San Francisco Bay and its tributaries. The southern subspecies *R. r. raviventris* is restricted to an area from San Mateo County and Alameda County along both sides of San Francisco Bay south to Santa Clara County. The salt marsh harvest mouse occurs with the closely related, ubiquitous and abundant western harvest mouse (*R. megalotis*) at upper edges of marshes and in marginal areas. Both animals occur in pickleweed, but the salt marsh harvest mouse replaces the western harvest mouse in denser areas of pickleweed. *R. raviventris* has declined substantially in recent decades. This decline is due primarily to diking and filling of marshes, subsidence, and changes in salinity brought about by increasing volumes of fresh water discharge into the bay. Densely vegetated, tidal, saline marsh dominated by pickleweed is generally considered prime habitat for this species. Moderate populations of salt marsh harvest mouse have also been found in diked marshes. Salt marsh harvest mice may also be found in grassland habitats adjacent to pickleweed marshes, particularly during the spring. These grasslands are generally used by harvest mice only in the spring when new grass growth affords suitable cover and possibly forage. Salt marsh harvest mice may also use adjacent grasslands on a daily basis to avoid high tide events.

This species is known to be present in the PAFB. The pickleweed habitat within project areas at the southeastern corner of the MSC provides potential habitat for this species and is contiguous with large expanses of pickleweed habitat in the basin. Therefore, this species could potentially be present on the site. However, more detailed surveys of the will be done prior to construction to determine whether the salt marsh harvest mouse is actually present within these areas. (See page 82 for detailed information)

Federal or State Candidate Species

Fall-run Chinook salmon (*Oncorhynchus tshawytscha*) Federal listing status: Candidate; State listing status: None Like the steelhead rainbow trout, the Chinook salmon is an anadromous species. Adults typically spawn in beds of coarse river gravels. Juveniles migrate downstream to the ocean, where they mature. Chinook salmon did not spawn in South San Francisco Bay streams historically. However, in recent years, small numbers of fall-run Chinook salmon have been found spawning in several South San Francisco Bay streams, such as Coyote Creek, Los Gatos Creek, and the Guadalupe River. These fish are likely strays from Central Valley runs, and there is evidence that most are derived from hatchery stock released into Central Valley streams that have native chinook runs. According to the National Marine Fisheries Service (NMFS), South San Francisco Bay fall-run Chinook salmon are included in the Central Valley Fall and Late Fall-run Evolutionary Significant Unit (ESU; Laura Hamilton, pers. comm.). In March 1998, the NMFS proposed several Chinook ESUs for protection under the Federal Endangered Species Act, but the Central Valley Fall and Late Fall-run ESU was designated only a Candidate for listing. Although some other Central Valley runs, such as the Sacramento River Winter-run ESU and the Central Valley Spring-run ESU, are federally listed as Threatened or Endangered, the Chinook salmon presumed to be present in South San Francisco Bay streams are fall-run fish. On rare occasions, adult Chinook have been detected in South San Francisco Bay streams in summer. Seasonal streamflow and temperature conditions in South San Francisco Bay streams may not be suitable for successful spawning by Sacramento River Winter-run Chinook, which typically spawn in late spring and summer, or by Central Valley Spring-run Chinook, which typically spawn in late summer and early fall. Therefore, any adult chinook found in the South San Francisco Bay in summer is either an early fall-run fish or a stray from a Central Valley run that is not expected to spawn successfully in South San Francisco Bay streams.

No Chinook salmon are known or expected to spawn in Matadero Creek due to the long reaches of unvegetated, channelized, concrete-lined channel and culverted sections of this stream immediately upstream from the site. In addition, no suitable spawning habitat is present within the heavily sedimented reaches of this stream within the project area. However, it is possible that juvenile Chinook from spawning sites elsewhere in the south San Francisco Bay area could enter the PAFB through the gates in the northeast corner of the basin, and that such fish could occur on occasion in the lower reaches of Matadero Creek.

California Species of Special Concern and State Protected Species

Western Pond Turtle (*Clemmys marmorata*) Federal listing status: None; State listing status: Species of Special Concern The western pond turtle is a medium-sized brown or olive-colored aquatic turtle found west of the Sierra Nevada crest and deserts and south to northern Baja California. Pond turtles are normally found in and along riparian areas, although gravid females have been reported up to a mile away from water in search of appropriate nest sites.

The preferred habitat for these turtles includes ponds or slow-moving water with numerous basking sites (logs, rocks, etc.), food sources (plants, aquatic invertebrates, and carrion), and few predators (raccoons, introduced fishes, and bullfrogs). Juvenile and adult turtles are commonly seen basking in the sun at appropriate sites, although they are extremely wary animals and often dive into the water at any perception of danger. Pond turtles have been commonly observed moving long distances to reach isolated stock ponds and other aquatic habitats. During the summer, they may estivate in leaf duff, well away from riparian areas. They have disappeared from a significant portion of their range due to habitat loss from agriculture, urbanization, water development projects, and the introduction of non-native aquatic predators (i.e. fishes and bullfrogs).

Western pond turtles may, on rare occasions, disperse to lower Matadero Creek from populations far upstream. However, they are unlikely to occur here frequently due to the long reaches of unvegetated, channelized, concrete-lined channel and culverted sections, which isolate the site from suitable habitat far upstream. Successful breeding and the persistence of a population on the site are likely precluded by the abundance of predators such as raccoons, feral cats, bullfrogs, and fish in the project vicinity.

White-tailed Kite (*Elanus caeruleus*) Federal listing status: None; State listing status: Protected This species prefers habitats with low ground cover and variable tree growth. Kite nests are built near the tops of oaks, willows, or other dense broad-leafed deciduous tress in partially cleared or cultivated fields, grassy foothills, marsh, riparian, woodland, and savannah. Kites prey primarily on small rodents (especially the California vole), but also feed on birds, insects, reptiles, and amphibians. When prey is abundant, these birds may rear two broods in a single breeding season, and nesting activity may occur from early February to early September. White-tailed Kites breed annually in trees along lower Matadero Creek, and this species is expected to breed in riparian vegetation on or immediately adjacent to the project site.

Northern Harrier (*Circus cyaneus*) Federal listing status: None; State listing status: Species of Special Concern The Northern Harrier is commonly found in open grasslands, agricultural areas and marshes. Nests are built on the ground in areas where long grasses provide cover and protection. In the San Francisco Bay area, these nests may be occupied from early February through July. Harriers hunt for a variety of prey, including rodents, birds, frogs, reptiles, and insects by flying low and slow in a traversing manner utilizing both sight and sound to detect prey. Although Northern Harriers nest in the PAFB, they are not expected to nest on the immediate project site, as they typically place their nests in the middle of broad expanses of herbaceous vegetation, not as close to the upland edge and to riparian habitat as the diked salt-marsh habitat that occurs on the project site. However, it is possible that an off-site harrier nest could be located close enough to project areas to be potentially impacted by project-related disturbance.

Cooper's Hawk (*Accipiter cooperii*) Federal listing status: None; State listing status: Species of Special Concern The Cooper's Hawk is a medium-sized hawk that preys on a variety of bird species and occasionally takes small mammals and reptiles. Breeding pairs in California usually select nest sites within dense stands of live oak woodland, riparian habitats, or other wooded areas. However, pairs may also nest in sparsely wooded areas and, especially in recent decades, nesting pairs have been found breeding in suburban areas and parks in the San Francisco Bay area and elsewhere. Although this species is expected to occur on-site primarily during the nonbreeding season, the riparian habitat, and possibly the eucalyptus trees, along Matadero Creek provide potentially suitable nesting sites, and this species is known to breed in Palo Alto not far upstream from the project site.

Burrowing Owl (*Athene cunicularia*) Federal listing status: Migratory Bird Treaty Act (16 U.S.C. 703-711; State listing status: Species of Special Concern The Burrowing Owl is a small, terrestrial owl of open country. Burrowing Owls favor flat, open grassland or gentle slopes and sparse-shrubland ecosystems. These Owls prefer annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, Burrowing Owls are found in close association with California ground squirrels (*Spermophilus beecheyi*). Owls use the abandoned burrows of ground squirrels for shelter and nesting. Ground squirrels provide nesting and refuge burrows, and maintain short vegetation height, which provides visual protection from avian predators and foraging habitat. In the absence of ground squirrel populations, habitats soon become unsuitable for occupancy by Owls. Burrowing Owls are semi-colonial nesters, and group size is one of the most significant factors contributing to site constancy by breeding Burrowing Owls. The nesting season, as recognized by the California Department of Fish and Game, runs from February 1 through August 31.

A few Burrowing Owls are known to occur on the closed portion of the Palo Alto landfill just northeast of the project site. However, habitat quality on the project site is marginal, at best, for this species, as the few areas having California ground squirrel burrows and relatively short vegetation (e.g., the ruderal habitats) are in close proximity to taller vegetation, and feral cats and other predators are common in the project area. Therefore, Burrowing Owls are unlikely to occur on the project site except possibly as rare dispersants.

Loggerhead Shrike (*Lanius ludovicianus*) Federal listing status: None; State Listing Status: Species of Special Concern The Loggerhead Shrike is a predatory passerine that forages in grasslands or ruderal habitats for small reptiles, mammals, birds, and insects and nests in small trees and shrubs. In approximately the last 20 years, populations of the Loggerhead Shrike in eastern North America have declined significantly. Although Loggerhead Shrikes are still considered a fairly common species in much of California, the piecemeal loss of grasslands has caused local declines in many areas, and the species as a whole is declining somewhat in the State. Loggerhead Shrikes are present on the project site, foraging in open ruderal, developed, and salt-marsh habitats and nesting in trees and shrubs.

California Yellow Warbler (*Dendroica petechia brewsteri*) Federal listing status: None; State listing status: Species of Special Concern Numbers of breeding pairs of California Yellow Warblers have declined in many lowland areas to such an extent that the species has been designated a species of special concern. This insectivore is primarily found in deciduous riparian habitats dominated by alders, cottonwoods, willows, and other small trees and shrubs. This warbler builds a compact nest of weed stalks, shredded bark, and grass high up in a deciduous tree or shrub. Yellow Warblers migrate mostly to Central and South America in the fall and return to California to breed in April. Yellow Warblers are common on the project site during migration. However, they are rare as breeders along the immediate edge of the south San Francisco Bay area, and breeding has not been confirmed in recent years along the project reach of Matadero Creek. Therefore, this species is expected to occur on the site only as a migrant.

Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*) Federal listing status: None; State listing status: Species of Special Concern The Saltmarsh Common Yellowthroat inhabits emergent vegetation and breeds in fresh and brackish marshes in the San Francisco Bay Area. This subspecies (one of approximately 12 subspecies of Common Yellowthroat recognized in North America) breeds from mid-March through early August, and pairs frequently raise two clutches per year. Saltmarsh Common Yellowthroats have been found during the breeding season from Tomales Bay, Marin County, south to the Santa Clara-Santa Cruz county line. Other subspecies of Common Yellowthroat occur in the region during migration and winter (August-May). Because these subspecies cannot be reliably distinguished in the field, determination of the presence of Saltmarsh Common Yellowthroats can be achieved only by locating nests in the breeding range of this subspecies, or via the observation of Yellowthroats during the summer months when the Saltmarsh Yellowthroat is the only subspecies in the region. Although little is known regarding the movements of this taxon, the wintering area has been described as coastal salt marshes from the San Francisco Bay region to San Diego County (Grinnell and Miller 1944). Saltmarsh Common Yellowthroats are fairly common residents in the freshwater marsh habitat on the project site and in portions of the riparian habitat having dense herbaceous vegetation within or immediately adjacent to the woody riparian corridor.

Alameda Song Sparrow (*Melospiza melodia pusillula*) Federal listing status: None; State Listing Status: Species of Special Concern The Alameda Song Sparrow is one of three subspecies of Song Sparrow breeding only in salt marsh habitats in the San Francisco Bay area. This subspecies is found in marshes bordering the South San Francisco Bay. Here it is most abundant in the taller vegetation found along tidal sloughs, including salt marsh cordgrass and marsh gumplant, nesting from early March to mid-August. Although it is occasionally found in bulrushes in brackish marshes, the Alameda Song Sparrow is very sedentary and is not known to disperse upstream into freshwater habitats. Populations of the Alameda Song Sparrow have declined due to the loss of salt marshes around the Bay, although within suitable habitat it is still fairly common.

Song Sparrows are fairly common residents in the freshwater marsh and riparian habitats on the project site, although the racial identity of the Song Sparrows on the project site is unknown. The location of the interface between populations of the Alameda Song Sparrow and those of the race breeding in freshwater riparian habitats (*M. m. gouldii*) in the vicinity of the project area is not well known due to difficulties in distinguishing individuals of these two races in the field. Conclusive identification of individual Song Sparrows as *pusillula* (rather than the widespread upland race *M. m. gouldii*) is not possible unless the birds are examined in the hand. Therefore, the Song Sparrows present on the site should be considered to represent *pusillula* unless they can be examined in the hand.

Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*) Federal listing status: None; State listing status: Species of Special Concern The salt marsh wandering shrew inhabits medium high marsh 1-8 feet above sea level where abundant driftwood and pickleweed exist. It seems to prefer the moister portions of pickleweed marshes, avoiding higher, drier areas. The distribution of this species in the vicinity of the project site is likely similar to that of the salt marsh harvest mouse, and the pickleweed habitat at the southeastern corner of the project site provides suitable habitat for this species. Therefore, this species could potentially be present on the site.

REGULATED HABITATS

U.S. Army Corps of Engineers Jurisdictional Waters

Areas meeting the regulatory definition of "Waters of the United States" are subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps). The Corps under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899), has jurisdiction over "Waters of the U.S." These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U. S.", tributaries of waters otherwise defined as "Waters of the U. S.", the territorial seas, and wetlands adjacent to "Waters of the U.S." Wetlands are considered to be Waters of the United States.

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions. In addition, agricultural lands that satisfy the criteria as "prior converted croplands," as defined by the Soil Conservation Service, are not subject to regulation under Section 404. "Prior converted croplands" are defined as wetlands that were both manipulated (drained or otherwise physically altered to remove water from the land) and cropped before 23 December 1985, to the extent that they no longer exhibit important wetland values. To qualify as "prior converted croplands" the lands must not be inundated for more than 14 consecutive days during the growing season.

Construction activities within jurisdictional waters are regulated by the Corps. The placement of fill into such waters must be in compliance with permit requirements of the Corps. Such permits are typically issued on the condition that the applicant agrees to provide mitigation which results in no net loss of wetland functions or values. No Corps permit will be approved in the absence of State water quality certification or waiver pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the State agency charged with implementing water quality certification in California.

Matadero Creek and its associated flood channels and embayments are potentially within the legal jurisdiction of the Corps under Section 404 of the Clean Water Act (refer to Figures 8 and 9). The project area (upstream and downstream of Highway 101) has approximately 0.66 acres of channel habitat, approximately 0.60 acres of coastal salt marsh habitat, and 0.48 acres of freshwater marsh, all of which may be considered wetland habitat. In addition to the channel habitat (i.e., aquatic) associated with the ordinary high water of Matadero Creek, Figure 8 documents the presence of coastal salt marsh habitat and fresh water marsh habitat located in the southeastern region of the project site. Approximately one-half of the willow riparian habitat on the south side of the creek is seasonally ponded with 6-8 inches of water due to flooding. During winter storm events, excess rainwater is conveyed out of the main channel of Matadero Creek and into the willow riparian floodplain through a breach in the levee of the main creek channel. The remaining areas within the project boundaries met none of the regulatory definitions of jurisdictional waters. These remaining areas are currently being monitored to ascertain their potential individual characteristics.

Habitats Regulated Under California Department of Fish and Game Code Section 1600

Potential CDFG jurisdiction includes the Matadero Creek channel and associated willow riparian habitat extending north and south of the channel to the edge of riparian spread canopy just beyond the top-of-bank. Any construction activities within the bed and bank of these channels may require that a streambed alteration agreement be concluded with CDFG.

Ordinance Trees

A City of Palo Alto ordinance defines all trees of the species coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*) that are eleven and one-half (11.5) inches in diameter (36 inches in circumference) or more when measured four and one-half (4.5) feet (54 inches) above natural grade, and/or any tree species classified as a "heritage tree" by the City Council in accordance with the provisions of the Title 8 Municipal Code regarding tree preservation and management requirements, as falling under the jurisdictional protection of the City of Palo Alto. No coast live oak or valley oak trees were observed on-site during the reconnaissance level tree survey effort. In addition, no heritage trees have been documented within the boundaries of the project site

2. Vegetation and Wildlife Impacts

Implementation of the project as proposed would ultimately result in conversion of a portion of the site's developed and undeveloped land into a sediment basin and overflow bypass channel to accommodate sediment storage and the better conveyance of flood flows from Matadero Creek into the PAFB. The proposed project would have a number of impacts on the area's vegetation and wildlife, which may constitute significant adverse effects. The California Environmental Quality Act (CEQA) and the CEQA Guidelines provide guidance in evaluating project impacts and determining which impacts will be significant. The District has also expanded upon the thresholds identified in the CEQA Guidelines to identify thresholds the District uses for flood control projects. For the purposes of this project, a vegetation and wildlife impact is considered significant if the project would:

1. have a substantial adverse effect, either directly or indirectly, on any listed or candidate endangered or threatened species, listed under either the California or Federal Endangered Species Acts, including reduction of number or restriction of range of a threatened or endangered plant or animal. This includes any activity which will kill, harm, result in chronic or acute disturbance of a listed species, or result in a significant reduction in the species population or habitat;
2. conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan, or biotic resource preservation policy;
3. have a substantial adverse effect, either directly or indirectly, on any species identified as a special status plant or wildlife species, including: any activity which will kill, harm, remove habitat for, or result in chronic or acute disturbance or a species listed by the California Department of Fish and Game as a "Species of Special Concern", or included on list 1 or 2 of the California Native Plant Society List of Endangered Species;
4. directly harm nesting species protected under the provisions of the Migratory Bird Treaty Act, including harm to migratory birds or their occupied nests, eggs or young,

or harassment that leads to direct or indirect harm, generally between March 1 and June 30;

5. have a substantial permanent adverse effect on wetland, riparian or other sensitive habitat identified in local or regional plans, policies or regulations, or by the California Department of Fish and Game, U.S. Fish and Wildlife Service or National Marine Fisheries including:
   - Result in a substantial permanent adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marsh, vernal pool or tidal or seasonal wetlands) through direct permanent removal or filling of wetlands, hydrological interruption or other actions that reduce the function and value of the habitat. Considerations include significance of the habitat, presence of endangered or threatened species, water quality and other wetland functions.
   - Result in a substantial removal of riparian vegetation or other sensitive habitat in relation to remaining existing habitat in the region or result in substantial fragmentation or isolation of sensitive wildlife habitat.
   - Cause substantial alteration to riparian habitat values, including an action that isolates the vegetation from its hydrologic system, alters groundwater levels to adversely affect vegetation growth and vigor, and artificially creating shady conditions when sun is required for plant growth.
6. result in the temporary removal of more than 0.15 acre of wetland vegetation in an earthen stream channel due to an individual project sediment removal activity for flood control maintenance unless the project is located in an area where revegetation/recovery is known to occur within one year of removal, and there are no known special status species present and there will be no substantial permenant or temporary effect on federally protected wetlands;
7. threaten to eliminate a plant or animal community from the region;
8. introduce invasive plant or animal species into native, riparian or wetland habitat areas where native species could become displaced or the genetic integrity of the native ecosystem could become degraded, except for erosion control activities;
9. result in the removal of a heritage sized tree (i.e., 18 inches diameter or greater at 4.5 feet above ground unless otherwise specified or sized by local jurisdictions in which the project is located), unless diseased, infested or poses an imminent threat/danger to people or property;
10. result in a substantial reduction in habitat for wildlife species such that the viability of an existing population would be threatened or jeopardized due to the amount of habitat removed. This includes substantial reduction of the habitat currently or potentially occupied on a year-round or seasonal basis by native resident or migratory species but not apply to "vagrant" species defined as an individual that has strayed from its typical migration route;
11. result in a permanent reduction in feeding, breeding, or resting areas for a large number of resident and regularly occurring wildlife species and/or impediment of the use of native wildlife nursery sites;

12. cause a wildlife population to drop below self-sustaining levels. This includes an action that isolates a population of a species from other populations with which it normally breeds;
13. interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors by blocking access, fragmenting access or permanently eliminating known wildlife corridors (i.e., along streams or other areas known for frequent and substantial wildlife movement which provide important links between habitat areas);
14. result in a temporary, but substantial sustained disturbance to wildlife resulting from construction activities (noise, vibration) (i.e. within 100 feet of sensitive wildlife habitat areas) or introduction of human activities into the area, such as by trails, domestic animals or nuisance species;
15. result in a substantial reduction in habitat for fish, cause a fish population to drop below self-sustaining levels, or interfere substantially with the movement of any native resident or migratory fish species;
16. result in substantial disturbance to native aquatic species and/or habitat due to construction or human activities resulting in any of the following:
    - Individuals of endangered or threatened species are killed, injured, harassed, displaced or habitat is permanently reduced.
    - Increased turbidity and/or resuspension of toxic pollutants at site or downstream, substantially affecting aquatic habitat.
    - Fish passage opportunities are substantially diminished.
17. substantially interfere with migration or spawning, incubating or rearing habitat for native aquatic species. Considerations for all of the above include whether or not a project would substantially:
    - Create barriers to fish migration, including alterations to increase velocities that fish cannot overcome;
    - Reduced streamflows fail to meet specific lifestage flow recommendations or needs;
    - Result in loss of Shaded Riverine Aquatic (SRA) cover habitat;
    - Change in temperature that would affect the success of any lifestage (including loss of vegetation that provides over-water shade;
    - Degrade channel substrate that is important for providing fish habitat (including loss of spawning gravels);
    - Change geomorphological processes such as sediment transport, erosion, sheer stress on substrate and vegetation;
    - Changes in instream habitat due to removal or alteration of rocks, woody debris, etc.;
    - Decrease Dissolved Oxygen levels below existing or lethal limits.

Impact Assessment Methodology

This section describes the assumptions and thresholds of significance developed to evaluate impacts on the vegetation and wildlife of the project site that would result from developing the proposed Matadero Creek flood control project. Two general assumptions need to be identified to understand the thresholds of significance for impacts to the project site's biotic resources. These assumptions are as follows:

1. Direct impacts to wildlife species are correlated with the loss of plant communities that provide their primary habitat. For this project, these losses would result from site excavation, channel construction, grading, filling or other damage to habitats, and direct wildlife loss or disturbance by construction activities and human uses. The conversion of these communities to a man-made channel, therefore, may result in the loss of or reduction of use for some wildlife species. The existing wildlife species are usually replaced with a suite of species that tolerate these development activities.

2. Indirect impacts to wildlife could also occur. If remaining fragments of undeveloped habitat are isolated from larger areas of contiguous habitat, the remaining habitats are expected to have lower biological values than those prevailing before development.

The following section addresses potential impacts to biotic resources resulting from: (1) construction disturbance due to widening of approximately 125 feet of concrete-lined channel in the vicinity of the Louis Street bridge; (2) creation of necessary infrastructure and transportation improvements for the area, including modifications of the Louis Road Bridge and its approaches; (3) construction and operation of a sediment detention basin immediately adjacent to Matadero Creek downstream of Highway 101, (4) construction and operation of a bypass channel, and; (5) possible improvements to an access road adjacent to the bypass channel along an existing gravel road around the perimeter of the MSC.

For the purpose of determining environmental impacts and mitigation requirements, the project assumes an 80-foot width for the bypass channel. That width allows for a 60-foot bypass channel with 10-foot construction buffer zones on each side.

Impacts Found to be Less Than Significant

Direct Loss of Ruderal and Developed Habitat

A total of 1.2 acres of ruderal and developed habitat that occurs within the site boundaries would be lost due to its direct conversion into a bypass channel and proposed future riparian mitigation. Ruderal and developed habitats are abundant throughout the region, and the floristic composition of these habitats is characterized by non-native and often invasive species that offer only marginal habitat value for most vertebrate species. Since the project elements impacting ruderal habitat would subsequently be planted with native vegetation, and given the fact that ruderal vegetation is regionally common, the loss of ruderal and developed habitat as a consequence of the project is a less than significant impact (but see *Potential Impacts to Nesting Raptors* below).

- **The project would result in a less than significant direct loss of ruderal and developed habitat. (Less Than Significant Impact)**

Direct Loss of Eucalyptus Habitat

Although most of the eucalyptus forest on-site would be removed by the project (a total of 0.50 acres), the overall plant diversity in eucalyptus groves is relatively low due to the toxic leachates from leaf litter shed by eucalyptus. Toxic leachates of this nature constitute allelopathic agents that inhibit the growth of competing native vegetation. In addition, eucalyptus trees are a non-native species and are considered invasive. As a consequence of low plant species diversity, the number of animal species that inhabit most of these groves is less than the adjacent biodiverse willow riparian habitat. Accordingly, loss of eucalyptus habitat is a less than significant impact (but see *Potential Impacts to Nesting Raptors* below).

- **The project would result in a less than significant direct loss of eucalyptus habitat. (Less Than Significant Impact)**

Potential Impacts to Individual California Red-legged Frogs During Construction

California red-legged frogs are not expected to breed on the project site, and this species is unlikely to occur at all on the site, except possibly on very rare occasions when a flood washes an individual to the site from areas far upstream. If a red-legged frog is present on-site during construction, the loss of an individual would constitute a significant impact. While it is not anticipated that red-legged frogs will be found in the project area, pre-construction surveys will be done to determine their presence/absence on site. If red-legged frogs are found, appropriate action will be taken based on U.S. Fish and Wildlife Service guidelines to avoid loss of an individual.

- **The project is not likely to result in significant impacts to individual California red-legged frogs. (Less Than Significant Impact)**

Impacts to Habitat for Certain Special-Status Plant and Animal Species

The special-status plant species marsh gumplant (*Grindelia stricta* var. *angustifolia*) was identified during the survey effort in the southern section of the project site growing along both sides of the gravel maintenance road directly adjacent to the east side of the MSC. The plant was found primarily in ruderal, disturbed habitat associated with the maintenance road and to a lesser extent, in coastal salt marsh habitat directly adjacent to the east side of the road. Marsh gumplant is geographically abundant in coastal salt marsh habitat throughout Monterey and the San Francisco Bay Area. This plant is closely related to, and often hybridizes with, the Great Valley gumplant (*Grindelia camporum*), a very common species ranging throughout the Central Valley and foothills of California. It also extends south into Baja, Mexico. Marsh gumplant is particularly common in the southern regions of the San Francisco Bay Area. For example, over 37 acres including tens-of-thousands of individual plants were documented in coastal salt marsh habitat in 1999 as part of a project involving mapping of plant associations of the South San Francisco Bay.

Approximately 25-50 individuals of marsh gumplant may be impacted as a result of the proposed project. Because marsh gumplant prefers the slightly drier, elevated, and more disturbed ecotonal fringes of coastal salt marsh habitat, it is expected to recolonize naturally into those portions of the project area to be impacted by the proposed development.

Therefore, the loss of these individuals would result in a less than significant impact to marsh gumplant.

Most of the additional special-status plants occurring in the region of the project are found in habitat types that do not occur on the project site. Exceptions to this are the sea blite, Congdon's tarplant, and the hairless popcorn flower. Because the coastal salt marsh habitat located on the project site is diked, potential suitable habitat for these plant species is less than optimal. In addition, most of the special-status plant species occurrences that are documented by the California Department of Fish and Game CNDDB, and are located in the vicinity of the project site are considered "historical" (over 25 years old).

No suitable habitat exists for, and/or the project site is outside the known distribution of, several of the animal species listed in Table 5. These include the Sacramento River winter-run and spring-run Chinook salmon, California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylii*), San Francisco garter snake, American White Pelican (*Pelecanus erythrorhynchos*), California Clapper Rail, California Least Tern (*Sterna antillarum brownii*), California Black Rail (*Laterallus jamaicensis coturniculus*), Western Snowy Plover (*Charadrius alexandrinus nivosus*), California Horned Lark (*Eremophila alpestris actia*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and ringtail (*Bassariscus astutus*). These species are not expected to occur on the project site and would thus not be affected by the project.

Some special-status terrestrial vertebrates may only be occasional visitors, migrants, or transients on the project site, if they occur on the site at all. These vertebrates include the western pond turtle, Double-crested Cormorant (*Phalacrocorax auritus*), Sharp-shinned Hawk (*Accipiter striatus*), Golden Eagle (*Aquila chrysaetos*), Prairie Falcon (*Falco mexicanus*), Merlin (*Falco columbarius*), American Peregrine Falcon (*Falco peregrinus anatum*), Long-billed Curlew (*Numenius americanus*), California Gull (*Larus californicus*), Vaux's Swift (*Chaetura vauxi*), Willow Flycatcher (*Empidonax traillii*), California Yellow Warbler, Tricolored Blackbird (*Agelaius tricolor*), Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*), and California mastiff bat (*Eumops perotis californicus*). The Northern Harrier is also present on the immediate project site only as a forager, although it breeds adjacent to the site. The project would have no effect on the breeding success of any of these species, although it would result in a small reduction of foraging and/or roosting habitat available to them regionally. Due to the abundance of similar habitats regionally and the minimal nature of project impacts to habitat used by these species, however, the project is expected to have a less than significant impact on these species that do not breed on the site.

The steelhead rainbow trout and fall-run Chinook salmon are not expected to spawn in Matadero Creek, and very little riparian habitat along the immediate banks of the creek would be permanently impacted by this project. Therefore, no long-term significant impacts to salmonid habitat are expected to result from this project (however, see *Potential Impacts to Steelhead Rainbow Trout and Fall-run Chinook salmon* below). Similarly, the California red-legged frog is not expected to breed along lower Matadero Creek. This species is unlikely to occur on the project site at all, except possibly on very rare occasions when floods wash an individual to the project site from breeding areas far upstream. Therefore, the project would not result in a significant impact to red-legged frog habitat (but see *Potential Impacts to Individual California Red-legged Frogs During Construction* below). Likewise, the Burrowing Owl is unlikely to occur on the site, except possibly as a rare dispersant.

Impacts to Burrowing Owl habitat from this project would be less than significant (but see *Potential Impacts to Burrowing Owls and their Burrows, Nests, Eggs, or Young* below).

Several special-status species may breed on the site. At most, one or two pairs of the Loggerhead Shrike, and one pair each of the Cooper's Hawk and White-tailed Kite, may nest on the project site. These species are fairly common breeders in central California, and populations of the latter two species seem to be fairly stable regionally and on a statewide level (shrike populations may be declining somewhat in California). Because the project site represents a very small fraction of the available breeding habitat for these species in the region, project impacts to habitat of these species are expected to be less than significant (but see *Potential Impacts to Nesting Raptors* below).

The Saltmarsh Common Yellowthroat and Song Sparrow, possibly including the Alameda Song Sparrow, are fairly common breeders in riparian and dense wetland vegetation on the project site. Although the regional abundance of both species is moderately low due to the limited extent of suitable habitat, these species are still fairly common where suitable habitat is present. In addition, the project is not expected to result in the permanent loss of more than a small amount of habitat. Therefore, project impacts to habitat of these species are expected to be less than significant (but see *Potential Impacts to Nesting Saltmarsh Common Yellowthroats and Alameda Song Sparrows* below).

The project would result in less than significant impacts to these special-status species. (Less Than Significant Impact)

Maintenance Impacts

Maintenance activities associated with the operation of Matadero Creek after the proposed improvements are in place will remove new vegetative growth within the creek and the bypass channel. New vegetation growth in the creek and bypass channel has the potential to reduce flood capacity. Maintenance activities will follow established Best Management Practices (BMPs) listed under proposed mitigation, to ensure minimal disturbance to wildlife species in the area. Implementation of the proposed BMPs would reduce the impact to less than significant. All future maintenance impacts are mitigated for as part of this project.

- **Maintenance activities would not significantly impact vegetation and wildlife in the project area. (Less than Significant)**

Impacts Found to be Significant

Indirect and Direct Losses of Wetland Habitat

Impacts to wetland habitat (0.11 acres) will occur within the willow riparian habitat impact area; a reconnaissance level survey for Corps jurisdiction indicated that Corps jurisdiction potentially occurs within that habitat. A formal delineation will be conducted during future design phases to determine jurisdiction over impacted areas. If Corps jurisdiction is found within the willow riparian habitat impact area, direct impacts to jurisdictional areas would be considered significant and warrant mitigation. (See Figure 10)

- **The project would result in significant impacts to wetland habitat. (Significant Impact)**

Indirect and Direct Losses of Riparian Habitat

A total of 0.78 acres of willow riparian habitat will be impacted by implementation of the proposed project. (See Figure 10)

- **The project would result in significant impacts to riparian habitat. (Significant Impact)**

Potential Impacts to Steelhead Rainbow Trout and Fall-run Chinook salmon

Steelhead rainbow trout and fall-run Chinook salmon are not expected to spawn in Matadero Creek, and very little riparian habitat along the immediate banks of the creek would be permanently impacted by this project. Therefore, no long-term significant impacts to salmonid habitat are expected to result from this project. Nevertheless, project activities could result in two potentially significant impacts to steelhead rainbow trout and Chinook salmon: impacts to water quality, and introduction of barriers to movement along the creek.

Construction could adversely affect water quality through increased input of sediments into the Matadero Creek channel, perturbation of sediments within the channel, and leaching of substances from fresh cement poured during project implementation. Water quality impacts could affect steelhead and salmon both on the site and in downstream areas.

Although these species are unlikely to occur on the project site frequently or in large numbers (given that they do not spawn in Matadero Creek), it is possible that they could occur on and upstream from the bypass channel project site. Therefore, temporary dewatering of a portion of lower Matadero Creek during construction could potentially introduce a barrier to movement of steelhead and Chinook salmon along the creek. Such barriers may prevent individuals of these species foraging upstream from the dewatering/diversion site from moving to downstream areas, potentially trapping salmonids.

- **The project could result in significant potential impacts to Steelhead Rainbow Trout and Fall-run Chinook salmon occupying the project site. (Significant Impact)**

Potential Impacts to Nesting Raptors

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under both federal and state laws and regulations. The Federal Migratory Bird Treaty Act (16 U.S.C. § 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Birds of prey are protected in California under Fish and Game Code section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG. Any loss of fertile raptor eggs or nesting raptors, or any activities resulting in raptor nest abandonment, would constitute a significant impact. Construction activities such as tree removal, site grading, etc., that disturb a nesting raptor on-site or immediately adjacent to the construction zone would constitute a significant impact.

Several raptors, including special-status species such as the Northern Harrier, Cooper's Hawk, and White-tailed Kite, are known to occur in the project vicinity and may breed either on the site or close enough that nests may be potentially disturbed by project-related disturbance. Therefore, the mitigation measures described below are necessary to avoid adverse environmental effects from the proposed project on any raptors nesting within the project site or immediately adjacent to the site.

- **The project could result in significant impacts to nesting raptors. (Significant Impact)**

Potential Impacts to Burrowing Owls and their Burrows, Nests, Eggs, or Young

As discussed above, raptors, including owls, and their nests are protected under both federal and state laws and regulations, including the Migratory Bird Treaty Act and California Fish and Game Code section 3503.5. A few Burrowing Owls are known to occur on the closed portion of the Palo Alto landfill just northeast of the project site. However, habitat quality on the project site is marginal for this species, as the few areas having California ground squirrel burrows and relatively short vegetation (e.g., the ruderal habitats) are in close proximity to taller vegetation, and feral cats and other predators are common in the project area. Therefore, Burrowing Owls are unlikely to occur on the project site except possibly as rare dispersants.

However, if Burrowing Owls are present on-site at the time of construction, construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG. Furthermore, the destruction of occupied Burrowing Owl burrows is also considered a taking. Any loss of Burrowing Owls or fertile eggs, any activities resulting in nest abandonment or the destruction of occupied Burrowing Owl burrows would constitute a significant impact. Construction activities such as tree removal, site grading, etc., which disturb nesting Burrowing Owls on-site or immediately adjacent to the site (to the construction zone only) or destroy occupied burrows would constitute a significant impact.

- **The project could result in significant impacts to Burrowing Owls occupying the project site. (Significant Impact)**

Potential Disturbance of Nesting Waterbirds During Construction

Waterbirds such as the Mallard, Gadwall, Pied-billed Grebe, and American Coot may nest in project areas within or immediately adjacent to Matadero Creek just downstream from Highway 101. These species and the Canada Goose, Northern Pintail, Gadwall, Cinnamon Teal, and possibly the American Avocet, Black-necked Stilt, and others, may nest in or very close to impact areas in the diked salt marsh and the adjacent pond at the southern end of the project site. If construction were to occur when nesting waterbirds were present in and around these ponds, nests could be destroyed, and nests in close proximity to the project alignment could be abandoned as a result of project-related disturbance. Such destruction and project-caused abandonment of nests would constitute a significant impact, as these species are protected by the Federal Migratory Bird Treaty Act, some of these species are uncommon and local breeders in the south San Francisco Bay area, and there is the potential for fairly large numbers of nesting waterbirds to be present in the vicinity of the project area.

- **The project could result in significant impacts to nesting waterbirds during project construction. (Significant Impact)**

Potential Disturbance of Nesting Swallows During Construction

Cliff and Barn Swallows, among the many species protected by the Federal Migratory Bird Treaty Act, nest on several of the bridges along lower Matadero Creek. A large colony is present on the bridge carrying Highway 101 and the frontage road over the creek, and these species could also breed on other bridges on lower Matadero Creek. The project have significant impacts on nests of these species if any structures to which the nests are attached are directly altered, causing the loss of nests with eggs or young, or if construction occurs close enough to active nests to cause the abandonment of nests with young.

- **The project could result in significant impacts to nesting swallows during project construction. (Significant Impact)**

Potential Impacts to Nesting Saltmarsh Common Yellowthroats and Alameda Song Sparrows

Saltmarsh Common Yellowthroats and Song Sparrows, possibly including the Alameda Song Sparrow, are fairly common breeders in riparian and dense wetland vegetation on the project site. If construction takes place during the breeding season, which extends roughly from early March to mid-August for both species, the nests, eggs, and/or young of these species could be destroyed or abandoned due to project-related disturbance. Earth-moving or other activities that physically alter vegetation used for nesting could result in direct impacts to nests of these species, and construction work in close proximity to active nests disturb adults to the point of nest abandonment. Such destruction or abandonment of nests of these species would constitute a significant impact.

- **The project could result in significant impacts to nesting Saltmarsh Common Yellowthroats and Alameda Song Sparrows. (Significant Impact)**

Potential Impacts to Salt Marsh Harvest Mice and Salt Marsh Wandering Shrews

The salt marsh harvest mouse is known to be present in the pickleweed-dominated habitats of the PAFB, and it is possible that the salt marsh wandering shrew occurs here as well. The project is expected to result in temporary impacts to a small amount of pickleweed-dominated habitat at the southeastern corner of the MSC. Because this pickleweed is contiguous with large expanses of pickleweed in the PAFB, the salt marsh harvest mouse and salt marsh wandering shrew could be present within the project site. The loss of individuals during project construction would constitute a significant impact.

- **The project could result in significant impacts to saltmarsh harvest mice and salt marsh wandering shrews. (Significant Impact)**

Enhancement Impacts

The restoration of Matadero Creek downstream of Highway 101 has the potential to eliminate individual native plants because of improper implementation of non-native eradication techniques. However, maintenance crews can avoid impacts to native riparian vegetation by following the guidelines established in the Stream Maintenance Program.

The restoration of Mayfield Slough would require extensive construction to either connect the slough to Emily Renzel Marsh or breach the levee between the slough and the PAFB. Because of construction requirements, this enhancement has the potential to impact established salt marsh habitat in and around the slough. In addition, implementation of the project could impact species that nest and forage in the slough and adjacent areas. Without mitigation for the potential loss of habitat and wildlife species, this enhancement would have significant biological impacts. As a result, the restoration of Emily Renzel Marsh has been determined to be an infeasible enhancement option.

Enhancements 1 and 3, described earlier in this document, are analyzed for potentially significant environmental impacts under CEQA, but not to the same degree as the proposed project. As a result, they are not part of the proposed project that is evaluated in this EIR, and would require further CEQA review prior to implementation.

- **The proposed enhancement of Matadero Creek downstream of Highway 101 would have a less than significant impact on biological resources. However, restoration of Emily Renzel Marsh could result in significant impacts to habitat and wildlife species. (Significant Impact)**

Biological Issues not Associated with the Proposed Project

Implementation of the proposed project will not conflict with any established Habitat Conservation Plans (HCPs) because the project area is not within or adjacent to any HCP. In addition, disturbed habitats will be replanted with native vegetation and continual maintenance (as specified in the SMP) will ensure that non-native and/or invasive plants will not establish themselves in the disturbed areas. Therefore, the proposed project will neither impact any established HCPs nor endanger native vegetation with non-native species.

- **The proposed project will have no impact on established HCPs and will not introduce non-native species to the project area. (No Impact)**

3. Mitigation Measures for Vegetation and Wildlife Impacts

Mitigation Measures Proposed by the Project

In addition to the proposed mitigation, the District has a set of standard Best Management Practices (BMPs) that are employed on all projects to reduce impacts. BMPs are considered by the District to be features of the proposed project and it should be assumed that all applicable Biological Resources BMPs will be implemented as part of this project. A complete list of District BMPs can be found in Appendix C of this document.

The following measures are proposed as part of the project to avoid or minimize impacts to vegetation and wildlife:

Indirect and Direct Losses of Wetland Habitat

Impacts to wetland habitat (0.11 acres) will occur within the proposed bypass alignment area (see Figure 3) during construction and future maintenance activities. Implementation of the following mitigation measures would reduce these impacts to a less than significant level. In addition to implementing the proposed mitigation, prior to grading, the District would obtain and comply with permits from the Corps, CDFG, and the RWQCB, as necessary.

1. **Construction Management.** A Construction Management Plan will be implemented by the District to ensure that construction crews are made aware of sensitive habitats and the measures necessary to avoid them. (See District BMP 17)

2. **Replacement.** The project would create new wetland habitat to replace the wetlands to be impacted. The following is a description of the proposed mitigation location, basic design elements, and mitigation goal.

   A suitable location for creating new wetlands occurs east of the project within the PAFB. The PAFB is a mosaic of riparian, wetland and ruderal habitats. Wetland mitigation could be created, adjacent to the existing wetland habitat, by excavating ruderal (upland) areas on the east side of the proposed bypass channel to an elevation (approximately –1.2 feet NGVD) appropriate for the establishment of wetland vegetation and hydrology. Based on a field examination, the soils to be exposed by the proposed excavation would be fully suitable for wetland habitat restoration. Following excavation the soils should be lightly ripped to relieve compaction.

   The restored wetland would be located completely on site between the bypass channel and the PAFB and would have muted tidal hydrology similar to existing wetlands within the flood basin. Both freshwater wetlands and salt marsh would be restored at this location. Planting the site with appropriate plant species immediately following excavation would be necessary to facilitate wetland habitat establishment. Furthermore, a non-native plant eradication program would need to be undertaken to prevent colonization by invasive species.

   The construction of the overflow bypass will create conditions suited to wetland establishment by providing an open, relatively flat-bottomed channel. As described in Table 2 of this EIR, necessary maintenance (i.e., sediment and emergent vegetation removal) will be performed on a periodic basis to maintain the hydraulic capacity of this bypass. These future maintenance activities will not result in the removal of any wetlands currently existing, and therefore the project will not involve any impact in this respect on existing wetlands. For those wetlands that may become established in the future in the concrete bottom bypass, their periodic removal will not result in the permanent loss of even these wetlands. As sediment deposits grow in subsequent seasons, re-growth of vegetation in the bypass is anticipated.

   The project proposes to provide mitigation by creating a minimum of 0.22 acres of new wetland habitat. The new wetland habitat will be a combination of both freshwater marsh and diked salt marsh. The mitigation goal is to create high quality wetland habitat that meets the target acreage and replaces the habitat functions and values of the impact areas. The mitigation goal should be achieved within three to five years of construction.

A detailed wetland restoration plan will be developed for this mitigation area during the regulatory permitting phase of the project. This plan will follow Corps guidelines and will incorporate additional studies and details, including the following:

- Type and acreage of wetland to be impacted and goals for wetland creation;
- Detailed assessment of soil suitability for wetland creation;
- Description of site hydrology, including depth and duration of ponding, potential for scour or deposit of sediments, etc.;
- Site preparation measures, including grading methods, to relieve compaction and/or ensure low potential for scouring of soils;
- Revegetation and erosion control on slopes surrounding the mitigation site;
- Description of buffer areas around the mitigation;
- Maintenance program;
- Long term monitoring program, including performance and success criteria; and;
- Measures to assure protection from human disturbance and to protect the area from development in perpetuity.

Conclusion: **With implementation of the above mitigation, the project's indirect and direct impacts on wetland habitat, resulting from construction and on-going maintenance activities, would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

Indirect and Direct Losses of Riparian Habitat

Construction of the overflow bypass channel would result in approximately 0.78 acres (located between the existing creek channel and the MSC property) of direct impacts to habitat. Willow riparian habitat impacted by the sediment basin and bypass channel would be mitigated with 2.34 acres of riparian habitat.

The mitigation goal is to create high quality riparian habitat that meets the target acreage. As final design of the improvements is completed, refinements will be made that may incrementally reduce impacts to sensitive habitat. The following mitigation measures will reduce riparian impacts to a less than significant level. In addition to implementing the proposed mitigation, prior to grading the District shall obtain and comply with permits from the Corps, CDFG, and the RWQCB, as necessary.

1. **Restoration and Enhancement.** The project would create new riparian habitat to replace the impacted areas. The following is a description of the proposed mitigation locations, basic design elements, and mitigation goal. The project also proposes a monitoring and maintenance program to ensure the long-term viability of the mitigation plantings.

   On-site Mitigation. Locations for creating new riparian habitat occur on-site adjacent to the proposed bypass channel (see Figure 10). The banks along the downstream (southeastern) end of the proposed flood bypass channel provide a good planting area for the creation of new riparian habitat. The eastern side of the proposed bypass channel currently comprises a levee (developed habitat) and an upland area (ruderal habitat) that would be removed during construction of the bypass channel. Restoration of riparian habitat at this site would occur following the completion of the bypass channel. The levee and adjacent upland areas would be excavated to approximately 0.0 feet NGVD and soils ripped to relieved compaction. Contract grown red willow and cottonwood plantings, and other native trees and shrubs, would be installed within the riparian restoration area, adjacent to the bypass channel, following an approved restoration plan.

Additional onsite riparian mitigation opportunities occur where willow riparian habitat would be removed during construction but no hardscape (e.g. concrete, riprap, etc.) would be installed, thus allowing replanting with native plants. Such an area occurs along East Bayshore Road and southwest of the proposed sediment basin.

It is estimated that approximately 0.97 acres of riparian mitigation can be accommodated adjacent to the proposed bypass channel and in areas "temporarily" impacted by construction activities. This is not adequate for all of the project's mitigation requirements, therefore, off-site mitigation is also proposed. Table 6 summarizes the impacts to riparian habitat and the proposed acreage of mitigation, both at the project site and at an off-site location.

TABLE 6
SUMMARY OF RIPARIAN IMPACTS AND PROPOSED MITIGATION

Riparian Impact / Mitigation	No. of Acres
Project Impacts to Riparian Habitat	0.78
Proposed Mitigation	2.34
Proposed On-site Mitigation	0.97
Proposed Off-Site Mitigation	1.37

Off-site Mitigation. Extensive field surveys were conducted to identify suitable offsite mitigation areas, starting with sites closest to the impact areas and moving further afield as needed. On July 18, 2001 *H.T. Harvey & Associates* surveyed possible mitigation sites identified by the District to determine the potential of each site to be successfully restored to high quality riparian habitat. Of the twelve sites surveyed, four were determined to be suitable for riparian habitat creation. The specific characteristics of each of the four sites are discussed below.

Site A. This site is adjacent to the International School near the corner of East Bayshore Road and Laura Lane (see Figure 11), downstream of where Highway 101 crosses San Francisquito Creek. Land uses surrounding the site include commercial and industrial. The parcel investigated includes several habitat types. The majority of the site is developed and currently under a commercial lease from the SCVWD. There is also a large disturbed area containing mostly non-native vegetation or landscaping. The site also includes the SCVWD levee and access road, some native and non-native riparian vegetation on the levee, and mudflats within the bed of San Francisquito Creek (tidal area). The most promising portion of the site is a narrow area between the levee road and the fence behind the school's playground. Native riparian vegetation at the site includes willows (*Salix* sp.), elderberry, coyote brush, and coast live oak. Other common vegetation at the site includes walnuts (*Juglans californica*), giant reed (*Arundo donax*), blackberry, acacia (*Acacia* sp.), eucalyptus (*Eucalyptus* sp.) and other ornamentals.

Riparian vegetation along the lower portion of this stretch of San Francisquito Creek is sparse or non-existent. A small portion of the proposed site's downstream end appears to be too far downstream for riparian habitat creation (i.e., estuarine habitat). The opposite bank consists mainly of disturbed ruderal grasslands. The native riparian vegetation that does exist within the parcel is interspersed with non-native species or development. The site has good potential for riparian habitat creation and restoration but may be constrained by the SCVWD's lease to the landscaping firm and its own access road. This site would provide approximately 2.0 acres of mitigation.

Site C. This site is adjacent to the Veteran's Administration Hospital (see Figure 11), close to the intersection of Foothill Expressway and Hillview Avenue. The site abuts the existing Matadero Creek riparian corridor, where it daylights north of Hillview Avenue. Land use surrounding the possible mitigation site includes commercial or industrial development on the opposite bank and the hospital and its facilities adjacent to the site. The parcel investigated included an unvegetated lot being used for parking, a temporary construction staging facility, and a vegetated area consisting of ruderal grasslands. Present riparian vegetation of the corridor in this area includes valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), California sycamore (*Plantanus californica*), coyote brush (*Baccharis pilularis*), blue elderberry (*Sambucus mexicana*), and Himalayan blackberry (*Rubus discolor*).

The present riparian corridor is high-quality habitat, but is being encroached upon by new development, especially on the bank opposite the proposed mitigation site. The site has good potential for the creation of high-quality riparian habitat adjoining existing habitat. This site would provide approximately 1.8 acres of mitigation.

Site D. This site is a small parcel of land located at the terminus of Arastradero Road at Page Mill Road (see Figure 11). The parcel is bordered by Matadero Creek, Page Mill Road and Balerl Ranch Road. Residential land uses surround the parcel. The site currently contains non-native grasses and landscaped species. A few oaks and a walnut may have been planted at the site within the last 10 years, but this does not appear to be a restoration site.

The site abuts high quality riparian habitat along Matadero Creek. The parcel appears to be suitable for riparian habitat creation and restoration. Furthermore, there is another similar parcel across Balerl Ranch Road that appears to be similarly suited to riparian habitat creation. This site would provide approximately 0.2 acres of mitigation.

Site E. This parcel is on Hale Creek, just downstream of Highway 280 (see Figure 11). Specifically, this site is at the terminus of Dawnridge Drive near Hilltop Drive. Residential land uses surround the parcel. The site is currently leased for horse pasture and is kept as ruderal grassland. The site abuts high quality riparian vegetation along Hale Creek containing a dense canopy of oak and willow.

The site is compatible with riparian habitat creation. The created habitat would adjoin existing high quality riparian vegetation. However, this site may be constrained by the SCVWD's lease to the horse owners. This site would provide approximately 1.0 acre of mitigation.

The preferred site, from a biological perspective, would be Site A on San Francisquito Creek. Although this site is not on the affected drainage, it is the only site that would create and restore habitat within the same geomorphic settings as the impact site.

Final design of the project will determine the exact amount of habitat loss and mitigation area needed. The District is committed to restricting construction impacts to no more than the level identified in this document.

The mitigation goal is to create high quality riparian habitat that meets the target acreage. The riparian habitat would provide some habitat values in the first five years following planting, but would not provide the values of mature riparian forest until approximately 8-10 years after planting. A detailed restoration plan will be prepared as part of the regulatory permitting for the project, and will address the same elements as described above for wetland mitigation.

2. **Reduce Project Impacts to the Riparian Corridor During Construction Phase.** During the construction phase of any proposed development improvement, the riparian corridor would be protected from potential runoff and further encroachment. A temporary plastic fence would identify the edge of the construction buffer zone. Contractors on the site would be required to remain within the prescribed 10-foot buffer zone.

3. **Reduce Impacts from Ongoing Maintenance Practices.** On-going maintenance activities after project construction is completed will follow established Best Management Practices (BMPs) listed under proposed mitigation to ensure minimal disturbance of plant and wildlife species in the area. (See Appendix C, District BMPs 15-17, 19 and 22). In addition, the following tree-trimming BMP will also be used for maintaining a 20-foot floodway in the natural Matadero Creek channel downstream of Highway 101:

> Do not prune more than 5 percent of live twigs and foliage unless an imminent hazard or end-weight reduction problem requires attention. Trees will be pruned for creation of adequate clearance in conformance to the *Tree Pruning Guidelines* of the International Society of Arborculture.

Conclusion: **With implementation of the above mitigation, the project's indirect and direct impacts on riparian habitat, resulting from construction and on-**

going maintenance activities, would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)

Potential Impacts to Steelhead Rainbow Trout and Fall-run Chinook Salmon

Project activities could result in two potentially significant impacts to steelhead rainbow trout and fall-run Chinook salmon: impacts to water quality, and introduction of barriers to movement along the creek. Implementation of the following mitigation measures is expected to reduce project impacts to steelhead rainbow trout and Chinook salmon to less than significant levels. If the National Marine Fisheries Service (NMFS) concludes that project impacts (e.g., dewatering of the creek or water-quality impacts) are significant, the Corps as the head permitting agency may elect to initiate consultation on a formal or informal basis with the NMFS under Section 7 of the Federal Endangered Species Act.

1. **Limit construction to the dry season.** Construction within the channel would be restricted to the dry season (June 15 - October 15), the period in which there is minimal water in the channel and in which the presence of these species within the project area is expected to be minimal. (See District BMP 22)

2. **Minimize impacts to water quality.** Measures to prevent or minimize a reduction in water quality during construction are also necessary. Any concrete poured during construction would be completely dried before it comes into contact with creek waters. In addition to mitigation measure no. 1 above, if this mitigation measure is implemented, water quality-related impacts to steelhead and Chinook salmon would be reduced to less than significant levels. (See also Water Quality mitigations included in Section VII. E. on page 84)

   Maintain connectivity of the stream channel during construction. Because it is possible that anadromous salmonids could be present in lower Matadero Creek during any time of year, including the non-migratory season, measures would be taken to ensure that movement of these species is not prevented by any water diversion structures used during construction, regardless of when construction occurs. Water would be diverted through the site by way of an open ditch (rather than a pipe) connecting the portions of Matadero Creek immediately upstream and downstream from the site. This plastic-lined ditch will be lined with cobble-sized stones or another natural substrate occurring at the diversion site to deter predation by making the fish less conspicuous as they pass through the channel. Water within this ditch would be at least 12 inches deep, and no impediments to movement, such as high drop structures, would be present. (See District BMPs 20 and 21)

Conclusion: **With implementation of the above mitigation, the project's impacts on Steelhead, Rainbow Trout and Fall-run Chinook salmon would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

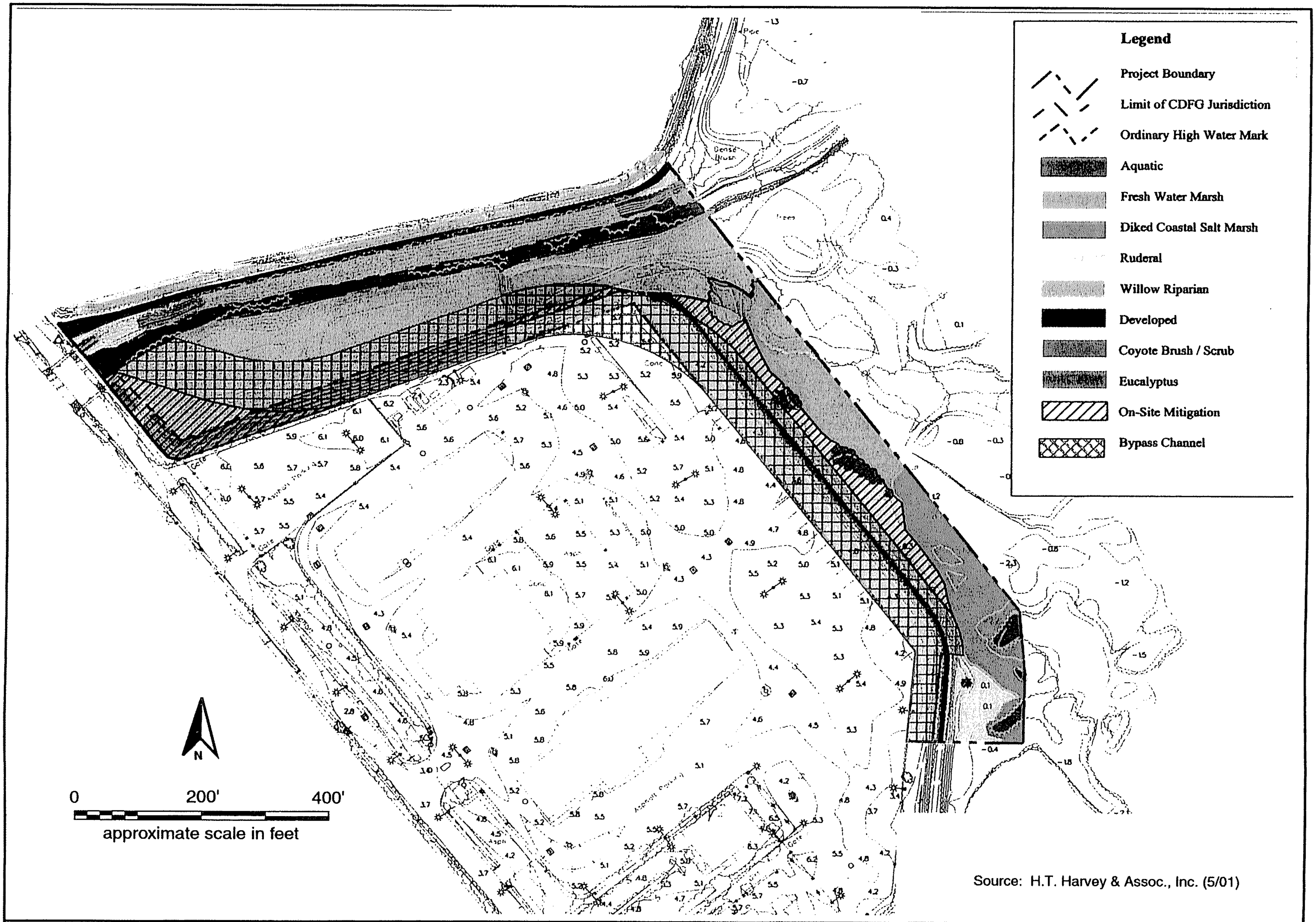
Potential Impacts to Individual California Red-legged Frogs During Construction

California red-legged frogs are not expected to breed at the project site, and this species is unlikely to occur at all at the site, except possibly on very rare occasions when a flood washes an individual to the site from areas far upstream. If a red-legged frog is present on-site during construction, the loss of an individual would constitute a significant impact. Implementation of the following mitigation measures would reduce project impacts on this species to less than significant levels.

1. **Preconstruction surveys.** A survey for this species within the immediate impact site would be conducted immediately before construction begins. Surveys would be conducted for three nights prior to construction in and along the creek bed. If frogs are found on the site, a qualified biologist will establish a construction buffer zone around the occupied area. If this is not feasible, the frog(s) will be moved by a qualified biologist based on USFWS. (See District BMP 17)

2. **Remove vegetation prior to construction.** If frogs are not found on the site during preconstruction surveys, all vegetation within the impact areas will then be completely removed just prior to the initiation of construction to ensure that frogs do not occupy the area during construction.

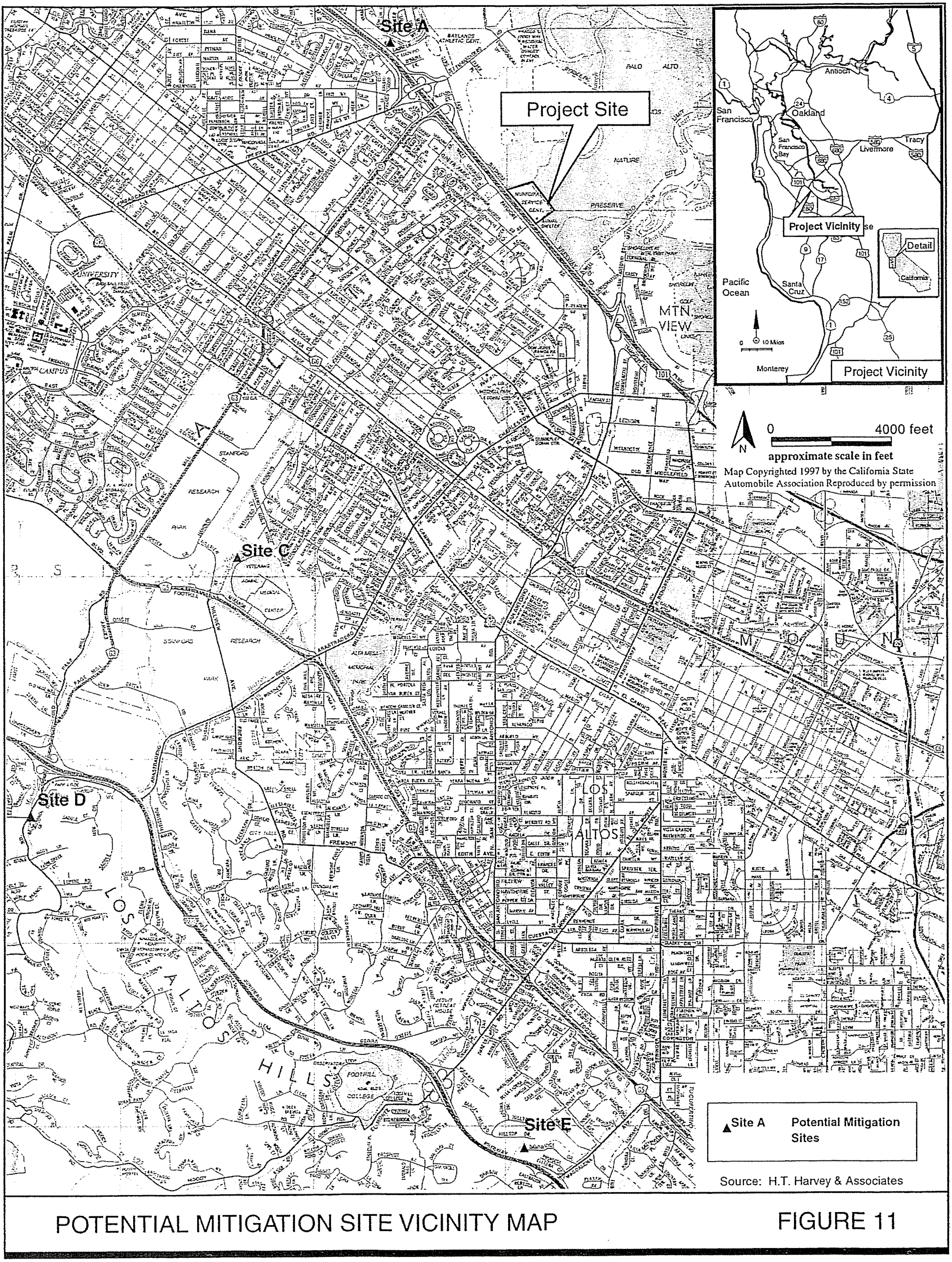
Conclusion: **With implementation of the above mitigation, the project's potential impacts on individual California red-legged frogs during construction would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**



Source: H.T. Harvey & Assoc., Inc. (5/01)

LOCATION OF ON-SITE MITIGATION

FIGURE 10



Map Copyrighted 1997 by the California State Automobile Association Reproduced by permission

Source: H.T. Harvey & Associates

POTENTIAL MITIGATION SITE VICINITY MAP

FIGURE 11

Potential Impacts to Nesting Raptors

Several raptors, including special-status species such as the Northern Harrier, Cooper's Hawk, and White-tailed Kite, are known to occur in the project vicinity and may breed either on the site or close enough that nests could be disturbed by project-related activities. Therefore, the mitigation measures described below would be implemented to reduce the adverse effects on any raptors nesting within or immediately adjacent to the project site. Implementation of the following mitigation would reduce the potential project-related environmental effects on nesting raptors to a less than significant level.

1. **Conformance with District Policy.** Construction will be done in compliance with the Migratory Bird Treaty Act, in accordance with the District's Nesting Bird Guidelines. (See Appendix D) (See District BMP 18)

2. **Preconstruction/predisturbance surveys.** If it is not feasible to schedule construction between September and January, preconstruction surveys for nesting raptors would be conducted by a qualified ornithologist based on District Guidelines to ensure that no active raptor nests would be disturbed during project implementation. Preconstruction surveys would be conducted no more than 14 days prior to the initiation of construction activities during the early part of the breeding season (January through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the ornithologist would inspect all trees in and immediately adjacent to the impact areas for raptor nests. All herbaceous salt marsh and grassland habitat within 250 feet of project impact areas would also be surveyed for Northern Harrier nests. If an active raptor nest is found close enough to the construction area to be disturbed by these activities, the ornithologist, in consultation with CDFG, would determine the extent of the construction-free buffer zone (typically 250 feet) to be established around the nest. The buffer zone would be observed and respected until the young have fledged and are independent of the nest.

Conclusion: **With implementation of the above mitigation, the project's potential impacts on nesting raptors would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

Potential Impacts to Burrowing Owls and their Burrows, Nests, Eggs, or Young

If Burrowing Owls are present on-site at the time of construction, construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Implementation the proposed mitigation would reduce potential project impacts on Burrowing Owls to a less than significant level.

1. **Preconstruction surveys and buffer zones.** In conformance with federal and state regulations protecting raptors against direct "take," pre-construction surveys for Burrowing Owls would be conducted by a qualified ornithologist prior to any soil-altering activity or economic development occurring within the project area. The preconstruction surveys would be conducted per CDFG guidelines (currently no more than 30 days prior to the start of site grading), regardless of the time of year in which grading occurs. If no Burrowing Owls are found, then no further mitigation would be warranted. If breeding Owls are located on or immediately adjacent to the site, a

construction-free buffer zone around the active burrow must be established as determined by the ornithologist in consultation with CDFG. No activities, including grading or other construction work or evictions of Owls, would proceed that may disturb breeding Owls.

If the project site is left fallow for 30 days or more after grading has occurred, a qualified ornithologist will be required to conduct additional Burrowing Owl surveys on the site prior to construction or other disturbances. If breeding Owls are located on or immediately adjacent to the site, a construction-free buffer zone around the active burrow must be established as determined by the ornithologist in consultation with CDFG. (See District BMP 18)

2. **Eviction and off-site compensation.** If preconstruction surveys determine that Burrowing Owls occupy the site, and avoiding development of occupied areas is not feasible, then the Owls may be evicted with the authorization of the CDFG during the non-breeding season (1 September-31 January). Such authorization generally requires habitat compensation on off-site mitigation lands.

Conclusion: **With implementation of the above mitigation, the project's potential impacts to individual Burrowing Owls would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

Potential Disturbance of Nesting Waterbirds During Construction

Implementation of one or the other of the following mitigation measures would reduce project impacts on nesting waterbirds to less than significant levels.

1. **Conformance with District Policy.** Construction will be done in compliance with the Migratory Bird Treaty Act, in accordance with the District's Nesting Bird Guidelines. (See Appendix D) (See District BMP 18)

2. **Preconstruction surveys and avoidance of nests.** If construction occurs during the breeding season (1 March to 1 September), preconstruction surveys would be conducted by a qualified ornithologist based on District Guidelines no more than 15 days prior to the initiation of construction in any given area. If any waterbird nests are found to be present within or near the impact areas during the breeding season, a construction-free buffer around any active nest would be established, the width of this buffer being determined by an experienced ornithologist in consultation with CDFG. This buffer would be enforced until nesting has been completed.

Conclusion: **With implementation of the above mitigation, the project's impacts on nesting waterbirds during construction would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

Potential Disturbance of Nesting Swallows During Construction

Implementation of the following mitigation measures is expected to reduce project impacts to nesting Barn and Cliff Swallows to less than significant levels.

1. **Conformance with District.** Construction will be done in compliance with the Migratory Bird Treaty Act, in accordance with the District's Nesting Bird Guidelines. (See Appendix D) (See District BMP 18)

2. **Preconstruction surveys.** Preconstruction surveys for nesting swallows would be conducted based on District Guidelines to ensure that they are not utilizing areas to be disturbed during construction.

3. **Remove nests before February 15.** All old nests in areas that would be disrupted by the proposed work would be removed before the swallow colony returns to the nesting site. This work would commence prior to February 15. Once the birds return, removal must be repeated at a frequency necessary to prevent nest completion or until project construction is complete.

4. **Obtain permit to destroy occupied nests.** Intact swallow nests are assumed to be occupied between February 15 and September 1. To remove/destroy nests during this period, a permit must be obtained from USFWS, Division of Animal Damage Control. A Fish & Wildlife permit requires compelling justification – a clear case that the work is essential to public safety. Any eggs removed from nests would require incubation by an approved wildlife rescue group.

Conclusion: **With implementation of the above mitigation, the project's potential impacts on nesting swallows would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

Potential Impacts to Nesting Saltmarsh Common Yellowthroats and Alameda Song Sparrows

Implementation of one or both of the following mitigation measures will reduce impacts to breeding Saltmarsh Common Yellowthroats and Song Sparrows to less than significant levels.

1. **Conformance with District Policy.** Construction will be done in compliance with the Migratory Bird Treaty Act, in accordance with the District's Nesting Bird Guidelines. (See Appendix D) (See District BMP 18)

2. **Preconstruction surveys.** If construction is to occur during the breeding season near potential nesting habitat, preconstruction surveys would be conducted by a qualified ornithologist based on District Guidelines_no more than 15 days prior to the initiation of construction in any given area. If Common Yellowthroat or Song Sparrow nests are found to be present within or near the impact areas during the breeding season, a construction-free buffer around any active nest would be established; the width of the buffer will be determined by an experienced ornithologist in consultation with CDFG. This buffer would be enforced until nesting has been completed.

Conclusion: **With implementation of the above mitigation, the project's potential impacts on Nesting Saltmarsh Common Yellowthroats and Alameda Song Sparrows would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

Potential Impacts to Salt Marsh Harvest Mice and Salt Marsh Wandering Shrews

Implementation of the following mitigation measures, in consultation with the USFWS, would reduce project impacts to the salt marsh harvest mouse and salt marsh wandering shrew to less than significant levels. If the project were to impact these species, the Corps, as the chief permitting agency, may elect to initiate consultation on a formal or informal basis with the USFWS under Section 7 of the Federal Endangered Species Act. However, if more detailed surveys of the site determine that the salt marsh harvest mouse is absent from impact areas or likely present only occasionally, informal consultation may be sufficient to address issues related to the salt marsh harvest mouse.

1. **Survey for Individuals.** Surveys will be conducted by a qualified biologist to determine if mice and shrews are present in the area. If mice or shrews are found, within 10 days prior to the initiation of construction in areas supporting pickleweed, all vegetation within these areas would be removed by hand.

2. **Minimize impacts and monitor construction.** In order to minimize impacts to harvest mice, construction related activities will be restricted to areas in which vegetation has previously been removed as described above. A biologist permitted to handle salt marsh harvest mice would be present during construction within this area to help ensure that the remaining adjacent vegetation is not impacted and to rescue any small mammals found within this area during construction. (See District BMP 18)

3. **Restoration of impacted habitat.** Areas in which pickleweed would be impacted would be replanted with pickleweed immediately following construction to restore habitat for the salt marsh harvest mouse and salt marsh wandering shrew. A mitigation and monitoring plan for the restoration of this habitat would be developed by a qualified biologist and approved by the USFWS.

Conclusion: **With implementation of the above mitigation, the project's potential impacts on salt marsh harvest mice and salt marsh wandering shrews would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

E. WATER QUALITY

1. Existing Setting

The proposed project site is located within and along the Matadero Creek channel. Discharges from this creek drain into the PAFB and eventually drain into San Francisco Bay. Surface runoff channeled into the creek carries pollutants to the Bay, including sediments, motor oil, car exhaust, chemicals, eroded soil, detergents, paints, and other discarded material carried through the storm drain system. These sediments and pollutants build up and increasingly degrade the Bay's water quality and biological health.

Water quality degradation is regulated by the Federal National Pollution Discharge Elimination System (NPDES) Program, established by the Clean Water Act, which controls and reduces pollutants to water bodies from point and nonpoint discharges. The program is administered by the California Regional Water Quality Control Boards. The San Francisco Bay Regional Water Quality Control Board (RWQCB) issues NPDES permits for discharges to water bodies in the San Francisco Bay Area. NPDES permits are required for all projects disturbing greater than one acre of land during construction and for industrial and other major dischargers.

2. Water Quality Impacts

For the purposes of this project, a water quality impact is considered significant if the project would:

- involve an activity or process that would result in a point source discharge to a receiving body that exceeds State water quality or discharge requirements, standards or objectives (e.g., RWQCB Basin Plan Objectives and State maximum contaminant levels, where applicable, WDR or NPDES discharge requirements, or Water Quality Control Plan standards for the receiving water body) or result in substantial non-point source contaminants;
- substantially degrade water quality compared to pre-project conditions;
- result in substantial erosion or downstream sedimentation; or
- Alter stream channel dimensions, profile and/or stability (including removal of bank vegetation) to the point where significant increased erosion and sedimentation would result.

The proposed flood control improvements along the Matadero Creek channel would expose bare soils and could result in increased erosion, turbidity, and sedimentation during construction. The increased sedimentation generated could degrade the quality of water in the creek, the PAFB, and San Francisco Bay by transporting other pollutants adhered to sediments, or adversely affecting biological resources. The water quality impacts that could occur during construction of the proposed channel modifications represent a potentially significant impact.

- **Construction of the project could result in potentially significant temporary water quality impacts upon Matadero Creek and the PAFB (Temporary Significant Impact)**

Implementation of the proposed project would alter current sediment deposition patterns within the creek. Sediment transport capacity in the Matadero Creek main channel will likely be reduced downstream of the bypass inlet. Depending on the amount of sediment, this could potentially result in deposition of sediment in the reach of Matadero Creek just downstream of the inlet. If the available sediment load in Matadero Creek downstream of the inlet exceeds the sediment transport capacity in this reach, it is reasonable to expect some deposition of sediment, which will need to be removed periodically. However, maintenance of the creek and bypass channel will follow all relevant procedures and BMPs listed in the Stream Maintenance Program and will have a less than significant impact on sediment deposition and transportation.

- **Construction of the project will not have a significant impact on sediment deposition and transportation. (Less than Significant Impact)**

Maintenance Impacts

Sediment removal activities in the creek, sediment basin, and overflow bypass channel have the potential to degrade water quality. To ensure that maintenance activities will not impact the creek, District maintenance crews will comply with the guidelines established in the Stream Maintenance Program for sediment removal. (See Appendix C) All impacts of long-term maintenance have been mitigated for by the Stream Maintenance Program or as part of this project.

- **Maintenance of the proposed project will not have a significant impact on the water quality of Matadero Creek. (Less than Significant Impact)**

3. Mitigation Measures for Water Quality Impacts

Mitigation Measures Proposed by the Project

As part of the District's NPDES Permit requirements, a Storm Water Pollution Prevention Plan (SWPPP) would be required for the proposed project. The SWPPP would identify storm water pollution prevention measures (control practices) to reduce pollutants in storm water discharges from the construction sites, both during construction and after construction is completed. Potential water quality impacts resulting during project construction in the Matadero Creek channel (i.e., sedimentation and turbidity) would be reduced by the implementation of standard best management practices to minimize erosion, including the following (additional District BMPs are listed in Appendix C):

1. Project construction in the channel would only take place during periods of low creek flows.

2. Project construction would include the implementation of a Storm Water Pollution Prevention Plan (SWPPP). (See District BMP 9)

3. Erosion control methods shall be used as appropriate during construction to control sediment and minimize water quality impacts. The District shall prevent erosion by using erosion control material according to manufacturer's specifications. Appropriate measures may include silt fences, straw bale barriers, and erosion control blankets. Proper removal and disposal of collected sediments and erosion control materials shall be achieved upon completion of project construction. (See District BMP 4)

4. Once construction is completed, the District would stabilize and/or revegetate the disturbed areas of the creek channel.

5. The contractor shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into the creek channel. No fueling, repair, cleaning, maintenance or vehicle washing shall be performed in the creek channel or in the areas at the top of the channel bank that may flow into the creek channel. (See District BMPs 36 and 39)

Conclusion: **With implementation of the above mitigation, the potential water quality impacts of the project would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

F. HAZARDOUS MATERIALS

The following discussion is based upon a Phase I Environmental Site Assessment and Soil and Ground Water Quality Screening prepared for the project site in September of 1999 by *Lowney Associates*. The objectives of this Phase I investigation were to identify existing and potential contamination sources, evaluate potential impacts to the project, and develop recommendations for any further investigations that may be required to determine the extent of any subsurface contamination. Additional soil and groundwater testing was conducted near the MSC facility in March of 2000 and August of 2001. Complete copies of these reports are in Volume II of the Matadero/Barron Creeks Long Term Remediation Project Planning Study.

1. Existing Setting

The Phase I investigation consisted of the following tasks: 1) a field reconnaissance of the creek channel and adjacent properties; 2) a review of historical maps and aerial photographs; 3) a review of topographical maps and reports; 4) a review of Sanborn Fire Insurance Maps; and 5) a review of regulatory databases and files to identify sites of potential environmental concern within the project site vicinity.

Site Field Surveys

A field survey of the site was conducted on May 14, 1999. The adjacent land uses consist mainly of single-family houses and apartments. Two parks, tennis courts, and a church were also observed adjacent to the creek channel. An ARCO service station was located on the eastern side of the creek, north of Middlefield Road. A Pacific Gas & Electric (PG&E) switching station was located on both sides of the creek, on the southwest side of Highway 101. The ARCO station and the PG&E switching station may use, handle, and/or store hazardous materials.

During field surveys of the MSC property during November of 1999, a fuel tank storage area was observed on the northwest portion of the site. The storage area consisted of a concrete pad located approximately three feet below the surrounding grade and bordered by retaining walls. Three above-ground storage tanks and one partial underground storage tank (half above ground and half below ground) were located within the pad area. The concrete pad was generally coated with epoxy, however, moderate cracking was observed in the concrete. Minor staining of the concrete was also observed. A sump pump was also observed, which appeared to drain the adjacent vehicle wash station.

Observation of the northern portion of the MSC site revealed a transformer storage area. The storage area consisted of an approximately 5,000 square foot concrete pad, which was gently sloped to the southwest. Numerous types of transformers were observed in this pad area and numerous high voltage electrical vaults were stored in this pad area.

Aerial and Map Review

A review of historical topographic maps and aerial photographs showed the presence of the Matadero Creek channel in its current location as of about 1939. At that time, the surrounding vicinity was undeveloped with a few houses located adjacent to the creek. The area surrounding the creek channel appeared to be mainly undeveloped until the late 1950's, when commercial uses appeared and residential areas near the creek became more dense.

During this time, Hoover School appeared on the west side of the creek. In a 1960 photograph, the church was present on the west side of the creek channel at Middlefield Road, and a gas service station was located just south of the current ARCO station. An aerial photograph from 1974 showed the area surrounding the creek channel near Highway 101 developed with the PG&E power transmission towers and lines.

Regulatory Review

Regulatory Agency Database Report

A regulatory agency database report was reviewed to identify reported contamination incidents within the vicinity of the project site and evaluate the potential for any incidents to impact the creek channel. A portion of the project site itself, Matadero Creek at Highway 101, was listed on the database report as an Emergency Response Notification System (ERNS) site. This listing indicates that there was a reported release of oil and/or other hazardous substances in this area. No other information regarding this release was reported.

In addition, the regulatory database report identified four hazardous materials incidents within the project vicinity. These incidents and their potential concern to the project site are presented below. Refer to Volume II of the Matadero/Barron Creeks Long Term Remediation Project Planning Study for a detailed discussion of the regulatory agency database lists.

ARCO Service Station

The ARCO Station located at 2995 Middlefield Road, adjacent to the eastern-southeastern side of the creek, is listed as a Leaking Underground Storage Tank (LUST) site. A gasoline release was reported at this site in 1983. Abatement reportedly included excavation and disposal/treatment of contaminated soil, and pumping and treatment of contaminated ground water. Floating product was present in the groundwater.

842 Wintergreen Avenue

842 Wintergreen Avenue, located approximately 1/8 mile southeast of the creek channel, is listed as an ERNS site. No other information regarding this site was available.

Megher Property

The Megher Property, located at 3070 Louis Road, approximately 1/8-mile up-gradient from the creek, is listed as a Cortese and South Bay Region 2 site. No ground water contamination is reported at this site.

City of Palo Alto Refuse Disposal Site and Municipal Service Center

The City of Palo Alto Refuse Disposal Site and the City's Municipal Service Center (MSC) are located at 3201 East Bayshore Road, adjacent to the creek channel, northeast of Highway 101. The Refuse Disposal Site is an active landfill. Waste accepted at this landfill include construction and demolition materials, industrial, and mixed municipal waste. This area is listed as a South Bay Region 2 and SLIC site. No other information is reported.

City and County Agency Files

Information on hazardous materials usage and storage at the sites of potential concern adjacent to the creek, including the ARCO station and the PG&E facility, was requested from the Palo Alto Building Department (PABD), the Palo Alto Fire Department (PAFD), and the Santa Clara County Environmental Health Department (SCCEHD). In addition, information on file at the District was also reviewed for these sites. According to the SCCEHD, no information was available on these sites. No information was present on the PG&E switching station at the PABD or PAFD. The information available on the ARCO station is summarized below.

Palo Alto Building Department

Information on file at the PABD indicated that the ARCO station site has been occupied by a service station since at least 1972. Owners of the property have included Gulf Oil Corporation, Atlantic Richfield Company, and ARCO Petroleum Products Company, the current owner.

Palo Alto Fire Department

According to information at the PAFD, at least two leaks from gasoline underground storage tanks (USTs) occurred at the service station, in 1986 and 1988. In 1987, several groundwater monitoring wells were installed at the site, and up to 0.11 feet of floating product was present in the wells. Ground water was reportedly encountered at depths of 8-9 feet, and the groundwater flow direction was to the northeast.

During the District's flood control work on Matadero Creek in 1988, significant quantities of gasoline-saturated soil were encountered at the ARCO property boundary near the creek channel. By 1991, several extraction and groundwater monitoring wells were present on-site. Design of a groundwater treatment system was still on-going. The 2995 Middlefield Road site is currently designated as a LUST case under the direction of the California Regional Water Quality Control Board (RWQCB).

Santa Clara Valley Water District

According to District files, a gasoline release was reportedly discovered at the ARCO service station site in 1986, when the leaking UST was removed. Remedial investigation and activities began in 1987, which included installation and monitoring of numerous ground water monitoring wells, installation of extraction wells, air sparging and soil vapor extraction wells. Several groundwater monitoring reports date from 1987 to 1999. The most recent groundwater monitoring report, dated June 1, 1999, indicates that groundwater from the monitoring wells adjacent to the south side of Matadero Creek did not contain significant levels of gasoline, methyl tertiary butyl ether (MTBE), or benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds. According to District files, as described above, as part of the previous flood control project in August 1988, impacted soil was encountered along the southern edge of the creek channel. The source was presumed to be the former leaking UST at the ARCO station. Remedial activities at the ARCO station are on going.

Interview

As part of the Phase I investigation, *Lowney Associates* interviewed Mr. Sam Zuccaro of the City of Palo Alto Engineering Department. According to Mr. Zuccaro, two underground utility cables run along the north side of the creek channel. The cables are surrounded by cooling oil, a mixture of Suniso 6 oil and polybutylene, which reportedly does not contain PCB's. The cables are reportedly 20-30 years old, and are not secondarily contained, since they were installed prior to regulations requiring secondary containment.

Soil and Groundwater Quality Screening and Evaluation

Upstream of Highway 101

On June 8 through June 11, 1999, *Lowney Associates* field engineers conducted a subsurface exploration program and logged 11 borings to approximate depths of 25-30 feet, including one boring down-gradient from the ARCO service. Soil samples were obtained from the borings at 2-5 foot depth intervals, or at significant changes in lithology. Groundwater was encountered at depths between 8.5 and 16 feet. Boring logs are included in Volume II of the Matadero/Barron Creeks Long Term Remediation Project Planning Study.

The soil samples were monitored for volatile hydrocarbons and found to contain only concentrations typical of natural background levels, with the highest readings at less than 10 parts per million (ppm). No indications of impacted soil or groundwater were observed in the soil samples collected from, and groundwater encountered in, the borings.

A groundwater sample from the nearest down-gradient monitoring well from the ARCO station was collected and analyzed. Two groundwater samples from near the intersection of Matadero Creek and Highway 101 were also collected and analyzed (on June 21, 1999 and July 9, 1999), since reported releases have occurred in the vicinity of that area. One groundwater sample was analyzed for petroleum hydrocarbons, BTEX and MTBE. One sample from near Highway 101 was also analyzed for halogenated volatile organic compounds (VOCs).

Analysis of the groundwater sample collected from near the ARCO station did not detect petroleum hydrocarbons, BTEX, or MTBE above laboratory detection limits. Laboratory analysis of the initial groundwater sample collected from near Highway 101 detected concentrations of mineral spirits at 150 parts per billion (ppb), concentrations of a Stoddard solvent-range compound at 180 ppb, and xylenes at concentrations of 1.9 ppb. VOC's were not detected. The second groundwater sample from near Highway 101 detected only xylenes at a concentration slightly above the detection limit (0.52 ppb). No other compounds were detected. The source of the petroleum hydrocarbons detected in the groundwater sample on June 21, 1999 is unknown. However, it does not appear that significant contamination is present in the groundwater at this location.

Municipal Services Center

On January 31, 2000, four borings were logged to depths of 8-12 feet on the MSC property (refer to Volume II of the Matadero/Barron Creeks Long Term Remediation Project Planning Study for the exact locations of the borings)

Fuel Tank Storage Area

Testing done by the District within and adjacent to the bypass alignment found evidence of low level soil and groundwater contamination from petroleum products near the MSC boundary. Preliminary data shows the contamination could effect approximately 5,000 cubic yards of soil within the bypass alignment.

Soil samples from the borings adjacent to the fuel tank storage area were analyzed for total petroleum hydrocarbons in the diesel range (TPHd) and gasoline range (TPHg), including benzene, toluene, ethyl benzene, and xylenes (BTEX), and MTBE. A ground water sample was also analyzed for TPHd, TPHg, BTEX, and MTBE. Low levels of diesel and gasoline range petroleum hydrocarbons (less than 100 ppm) were detected in the soil samples near the fuel tank storage area. However, high levels of diesel-range petroleum hydrocarbons (380,000 ppb) and gasoline-range petroleum hydrocarbons (67,000 ppb) were detected in the groundwater sample in this area.

Transformer Storage Area

Two additional borings were drilled adjacent to the transformer storage area, within the proposed bypass channel alignment. Groundwater was encountered at an approximate depth of 7.5 feet in one of the two borings.

One soil sample collected from each of the two borings was analyzed for total recoverable petroleum hydrocarbons (TRPH) and PCBs. A groundwater sample collected from this area was also analyzed for TRPH and PCBs. No significant levels of TRPH or PCBs were detected in the soil and groundwater samples near the transformer storage area.

2. Hazardous Materials Impacts

For the purposes of this project, a hazardous materials impact is considered significant if the project would:

1. Create a significant hazard to the public or environment through the unregulated transport, use or disposal of hazardous materials or release of hazardous materials in the environment due to accident;
2. Be located on a site listed by the state pursuant to Government Code Section 65962.5 as a hazardous material site and would create a significant hazard to the public or the environment;
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school and there is a substantial likelihood of exposure of the occupants of the school;
4. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;

5. Pose a hazard or health risk to construction workers, employees or the public due to exposure of on-site soils or water that are contaminated by hazardous materials and encountered during project construction activities;
6. Result in migration of contaminants into waterways or drinking water supplies due to exposure of subsurface contamination during construction; or
7. For projects located within an airport safety zone as designated in local airport land use plans or within 2 miles of a public airstrip where no local airport land use plans exist, result in a safety hazard to persons working or residing within this area.

Potential Sources of On-Site Impacts

Since the proposed project consists of flood control improvements to Matadero Creek, it would not expose nearby land uses to significant long-term risk from hazardous materials or contamination on the site.

There are two buried 60 kilovolt (kV) electric transmission lines, which are encased in insulating oil, present along the northwestern bank of the Matadero Creek channel. In addition, a sanitary sewer line, and a buried communications cable also run along the northeastern side of the Matadero Creek channel. While leaks from these lines have not been reported, the presence of the 60 kV transmission lines and the sanitary sewer line could present a significant hazard to construction workers and nearby residents in the event one of these lines is broken during project construction.

- **The proposed flood control project would not result in significant long-term impacts to nearby land uses from hazardous materials on-site. However, construction of the project would expose construction workers and nearby land uses to significant risks if breaks were caused in the electric transmission lines and/or sanitary sewer lines in the creek channel. (Significant Impact)**

Impacts due to Off-Site Sources

ARCO Service Station

Based on the regulatory review, field survey, and soil and groundwater sampling discussed above, previous gasoline releases at the ARCO station located at 2995 Middlefield Road impacted the soil and groundwater adjacent to the Matadero Creek channel in the past. In fact, impacted soil adjacent to the channel was discovered during previous flood control work on Matadero Creek in 1988. It appears that remediation activities at the ARCO station site have reduced the contamination levels in the soil and groundwater adjacent to the creek channel. However, during construction of the proposed project improvements in this area, residual levels of petroleum hydrocarbons could be encountered. The release of contaminated soil or groundwater into the Matadero Creek channel or PAFB during construction would be a significant hazardous materials impact.

- **Impacted soil and groundwater within and adjacent to the channel could be encountered during project construction and released into the creek channel or PAFB. (Significant Impact)**

Municipal Services Center

Construction of the bypass channel adjacent to the MSC would require removal of approximately 5,000 cubic yards of soil contaminated by petroleum products. Inadvertant release of contaminated soil or groundwater into the Matadero Creek channel or the PAFB would be a significant hazardous materials impact.

- **Petroleum-impacted soil and/or groundwater within and adjacent to the proposed bypass channel area could be encountered during project construction and released into the creek channel or PAFB. (Significant Impact)**

Maintenance Impacts

Maintenance activities associated with the operation of Matadero Creek and the bypass channel will not require the use of any hazardous materials. Furthermore, these activities will be within the stream channel and will not require maintenance crews to come into contact with any offsite soil or groundwater contamination. Therefore, maintenance activities will have no hazardous materials impacts.

- **Hazardous materials will not be used or encountered during routine maintenance activities. (No Impact)**

Hazardous Materials Issues not Associated with the Proposed Project

The proposed project is located within 2 miles of a public airport. However, implementation of the project will not result in a safety hazard to persons working on the project.

- **The proposed project will have no impact on worker safety in regards to air traffic. (No Impact)**

3. Mitigation Measures for Hazardous Materials Impacts

Mitigation Measures Proposed by the Project

In addition to the proposed mitigation, the District has a set of standard Best Management Practices (BMPs) that are employed on all projects to reduce impacts. BMPs are considered by the District to be features of the proposed project and it should be assumed that all applicable Hazardous Materials BMPs will be implemented as part of this project. A complete list of District BMPs can be found in Appendix C of this document.

The following mitigation measures are included in the project to reduce potential impacts due to the presence of hazardous materials. Mitigation plans will include commonly accepted methods for reducing impacts for work in soil contaminated with petroleum products. (See the Engineer's Report)

- Prior to construction, the exact location of electric transmission lines and sanitary sewer lines in the project area will be identified. A buffer zone will then be established around all transmission and sewer lines prior to construction and will be in effect until construction is complete. If a break occurs in a known utility line as a result of construction, the contractor will be financially responsible for repair of the line. Repair work will begin immediately and will be done by the contractor or the appropriate utility company. If a break occurs in a previously unknown utility line as a result of construction, the contractor shall immediately notify the District. The District will then make arrangements for immediate repair work with the appropriate utility company.

- Prior to construction in the proposed bypass channel area, the extent of contamination of soil and groundwater within the final design boundary shall be evaluated. A Health and Safety Plan and a Soil Management Plan shall be prepared that will identify protocols for working in potentially contaminated soil and groundwater. The results of this evaluation, along with copies of the Health and Safety Plan and a Soil Management Plan, would be submitted to the City of Palo Alto. (See District BMPs 35 and 36)

- All protocols and appropriate measures identified in the Health and Safety Plan and the Soil Management Plan shall be followed during construction of the proposed bypass channel. Monitoring wells will be installed to track changes and patterns in the contamination present.

- Any contaminated soils or groundwater encountered during construction of the proposed channel improvements would be disposed of in accordance with all applicable regulations and requirements. (See District BMP 37)

- In the event impacted soils and/or groundwater are encountered during construction of the bypass, the impacted soil shall be stockpiled separately and soil samples shall be collected to evaluate disposal options. Impacted soil excavated from the area of the proposed bypass channel would require appropriate off-site disposal to an approved facility. Impacted groundwater would also require appropriate off-site disposal or treatment. (See District BMP 37)

Regardless of the level of hazardous materials contamination within the project area, the type and scope of mitigation will be the same for removal and disposal of the contaminated soil and groundwater.

Conclusion: **With implementation of the above mitigation, the project's potential hazardous materials impacts would be reduced to a less than significant level. (Less Than Significant Impact with Mitigation)**

G. CULTURAL RESOURCES

This section is based on a cultural resource evaluation of the Matadero Creek area conducted in September 1987, by *Archaeological Resource Management*, for the District's 1988 Matadero and Barron Creeks Planning Study. A copy of the complete report is on file and available for review at the District. This investigation included a review of records on file at the California Archaeological Inventory located at Sonoma State University and a field survey of the project site area.

1. Existing Setting

There are no recorded archaeological sites within the project area. Most of the soils in the project reach of Matadero Creek have been seriously disturbed during construction of the concrete channel and maintenance activities. The field survey conducted for the cultural resource evaluation found soils from dark brown to light brown loam and clay. Natural rock was not frequently visible, but imported gravel was common in the soils on site, as a result of the previous channel work and development in the area. No significant traces of cultural resources were noted in this area.

There are three recorded archaeological sites located in the general vicinity, in the upstream portion of the Matadero Creek watershed. The first site consists of a large, partially destroyed, village site with a well-developed midden containing human burials, flaked and groundstone tools, worked bone, a charmstone, shell beads and pendants, in addition to fire-altered rock, burned bone, chert waste materials, and dietary shell remains.

The second site contained three human burials that have been disturbed by previous development. In addition, the site consisted of a large, deep midden deposit, which had a high shell content and artifacts, including shell beads, metate-type grinding stones, chert cores, hammerstones, manos, pestle fragments, and lithic materials. Although the surface integrity of this site has been greatly disturbed, it is possible that deep subsurface deposits may remain intact.

The third site consists of a dark midden soil containing chert flake tools, bone, shell, fire-altered rock, and charcoal. No human remains were noted at this site, although their presence is likely. The surface of this site has been greatly disturbed, although deposits are believed to be intact below the surface.

2. Cultural Resources Impacts

For the purpose of this project, a cultural resources impact is considered significant if the project would:

1. eliminate important examples of the major periods of California history or prehistory;
2. cause a substantial adverse change in the significance of a unique archaeological resource due to activities that destroy, disturb, damage or remove unique archaeological resources[7];

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[7] "Unique Archeological Resource" means an archeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria: contains information needed to answer important scientific research questions, it has a special and particular quality such as being the oldest of its type or the best available example, or is directly associated with a scientifically recognized important prehistoric or historic event.

3. cause a substantial adverse change in the significance of a historic resource such as physical demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of an historic resource would be materially impaired[8], as determined by a qualified professional. A Historical Resource shall include the following:
    - a resource listed in or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historic Places,
    - a resource included in a local register of historic resources,
    - an object, building, structure, site, area, place, record or manuscript which a lead agency determines to be historically significant or significant in the archeological, engineering, scientific, economic, agricultural, educational, social, political, military or cultural annals of California and meets the following criteria:
        - is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
        - is associated with the lives of persons important in our past;
        - embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual, or possess high artistic values; or
        - has yielded, or may be likely to yield, information important in prehistory or history.
4. result in the permanent loss of a unique paleontological resource or site, as determined by a qualified professional, that is considered to be of regional or statewide significance due to limited occurrence of the resource and/or scientific or educational value; or
5. disturb any human remains, including those interred outside of formal cemeteries.

As described above, there are no recorded archaeological sites within the project reach of Matadero Creek. Most of the soils in the project reach of Matadero Creek have been highly disturbed during previous channel construction and maintenance activities, as well as development of the residential areas, and no significant cultural resources were observed. Because the proposed flood control improvements would be constructed within the existing Matadero Creek channel, the project is not anticipated to result in impacts to buried cultural resources.

- **The project is not anticipated to result in impacts to archaeological resources. (Less than Significant Impact)**

Maintenance Impacts

There are no recorded archaeological sites within the project reach of Matadero Creek, therefore, maintenance activities associated with the operation of Matadero Creek and the bypass channel will have no impact on cultural resources. However, if any resources are deposited in the project area as a result of erosion and/or flood flows, mitigation presented for construction related impacts will be implemented.

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[8] The significance of a historical resource is "materially impaired" when a project demolishes or adversely materially alters those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historic Places or in a local register of historic places. This also includes relocation that does not conform to the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings; and construction that reduces the integrity or significance of significant surrounding resources.

- **Maintenance activities will not impact known archeological resources in the vicinity of the project site. (Less than Significant Impact)**

3. Mitigation for Cultural Resources

Mitigation Measures Proposed by the Project

In addition to the proposed mitigation, the District has a set of standard Best Management Practices (BMPs) that are employed on all projects to reduce impacts. BMPs are considered by the District to be features of the proposed project and it should be assumed that all applicable Cultural Resources BMPs will be implemented as part of this project. A complete list of District BMPs can be found in Appendix C of this document.

Although the project is not anticipated to result in significant cultural resources impacts, the project includes the following mitigation in order to further reduce potential impacts upon cultural resources:

- In the event that prehistoric or historic resources are encountered during construction, all construction within a 50-meter radius of the find would be stopped, the District notified, and an archaeologist retained to examine the find and make appropriate recommendations, which the District would then implement. (See District BMPs 40 and 41)

- In the event that human remains are discovered during construction, all construction will stop within a 50-meter radius of the find. The Santa Clara County coroner will be notified and shall make a determination as to whether the remains are of native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the coroner must notify the Native American Heritage Commission (NAHC) immediately. Once NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial. If no satisfactory agreement can be reached regarding the disposal of the remains, the District will reenter the remains and any associated artifacts in the property in a location not subject to subsurface disturbance. (See District BMPs 40 and 41)

Conclusion: **With implementation of the above mitigation, the potential for impacts to cultural resources would be further reduced. (Less Than Significant Impact with Mitigation)**

H. VISUAL AND AESTHETICS

1. Existing Setting

The visual and aesthetic character of the project site varies along Matadero Creek. The creek ranges from an undeveloped earthen channel to a concrete-lined, trapezoidal channel. The channel contains several roadway bridge crossings. Vegetation along the project portion of the creek ranges from a natural and relatively undisturbed riparian forest, at the downstream end, to highly disturbed, upstream of Highway 101.

Downstream of Highway 101

Downstream of Highway 101, Matadero Creek is a 20-foot wide, natural channel that is generally surrounded by undeveloped wetland and riparian areas. A substantial amount of mature riparian vegetation is present along the channel (see the photographs on the following pages). The creek is contained between a levee to the north and the City of Palo Alto MSC property to the south. However, the creek channel is not directly adjacent to the MSC; they are separated by riparian vegetation and a grove of eucalyptus trees. The levee separates the creek from Emily Renzel Marsh, Mayfield Slough and the landfill. In addition, the levee is part of the trail system that runs throughout the PAFB and the surrounding area. The City's MSC facility consists of several concrete buildings and paved storage yards.

Upstream of Highway 101

Upstream of Highway 101, Matadero Creek flows through a mostly residential area of Palo Alto. The creek is a concrete trapezoidal channel along this stretch, with adjacent single-family houses and apartments. Most of the residential units face away from the creek. The creek channel is visible from some residential lots and at all bridge crossings. In addition to the residences, a church and an ARCO service station are located along the creek channel at Middlefield Road, and a PG&E substation is located along the creek channel, just west of Highway 101. The upstream reach of Matadero Creek is sparsely vegetated between Greer Road and Alma Street. Vegetation in this reach occurs within the creek channel in areas where there is accumulation of sediment above the water line. In addition, there is some vegetation growth along the channel walls and maintenance roads where there are breaks in the concrete. From Greer Road to Highway 101, the channel has an earthen bottom and sack concrete sides that allow sediment to accumulate and vegetation to grow. Waterfowl are occasionally present and there is a small amount of water in the creek year round. However, the existing channel does not greatly enhance the visual character of the existing neighborhood (Refer to the photographs on the following pages).

2. Visual and Aesthetic Impacts

For the purpose of this project, a visual and aesthetic impact is considered significant if the project would:

1. permanently and substantially alter or degrade the visual character or quality of the site and/or surrounding area due to:
    - Major natural landform alteration, e.g. one or more distinct and prominent geologic or topographic features would be destroyed, permanently covered or

Photo 1: This photograph was taken from the pedestrian/bicycle trail along East Bayshore Road and shows the Matadero Creek channel northeast of Highway 101.

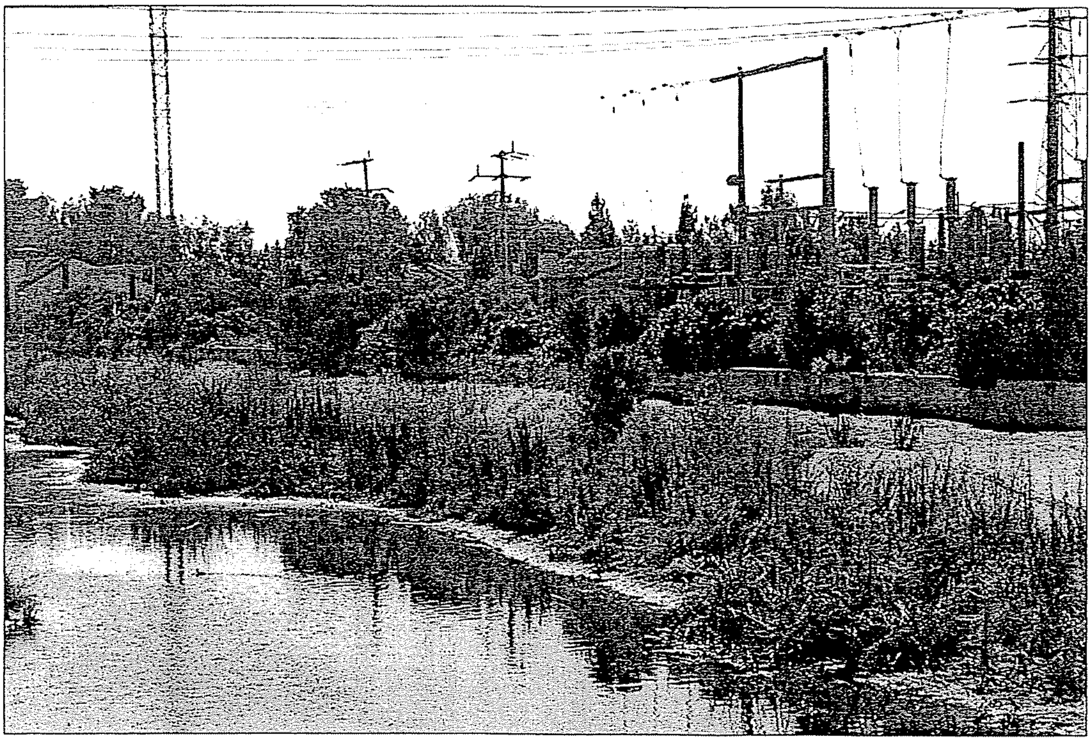

Photo 2: This photograph was taken from Bayshore Road, south of Highway 101. This photograph shows the PG&E station and single-family residences adjacent to the Matadero Creek channel.

PHOTOS 1 AND 2

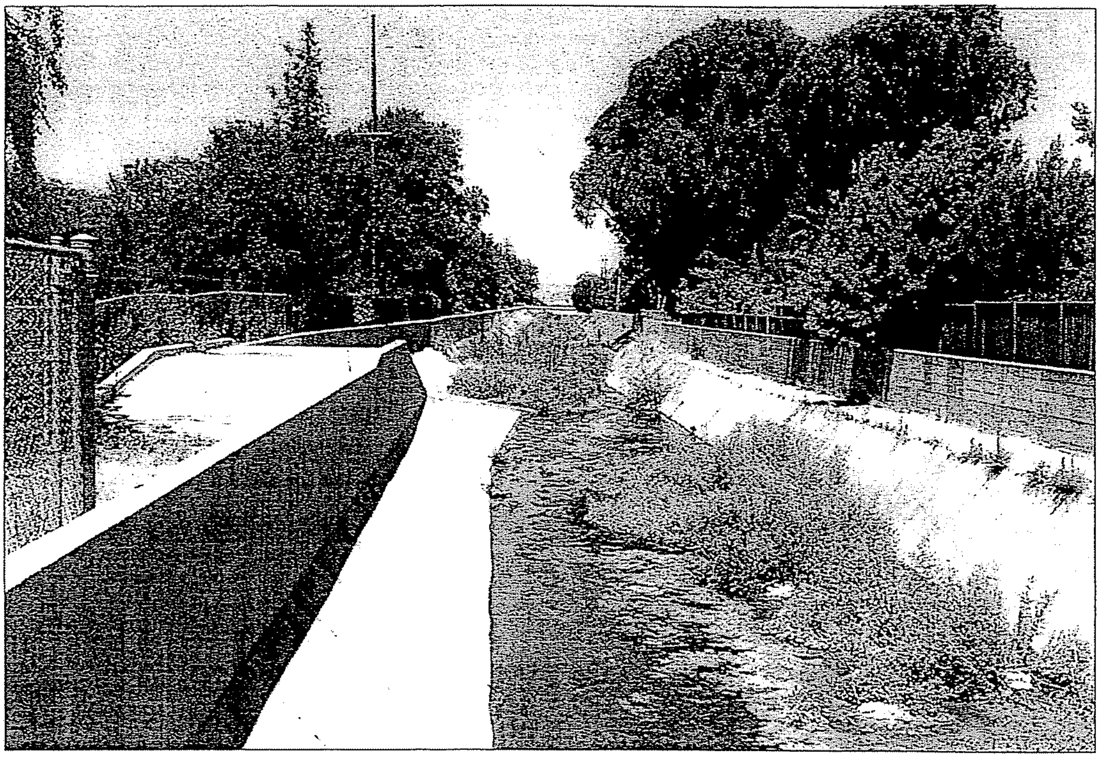

Photo 3: This photograph shows the existing Matadero Creek channel north of Louis Road. The existing floodwalls can be seen along the top of the channel banks. Single-family homes are located on both sides of the creek channel, behind the fences.

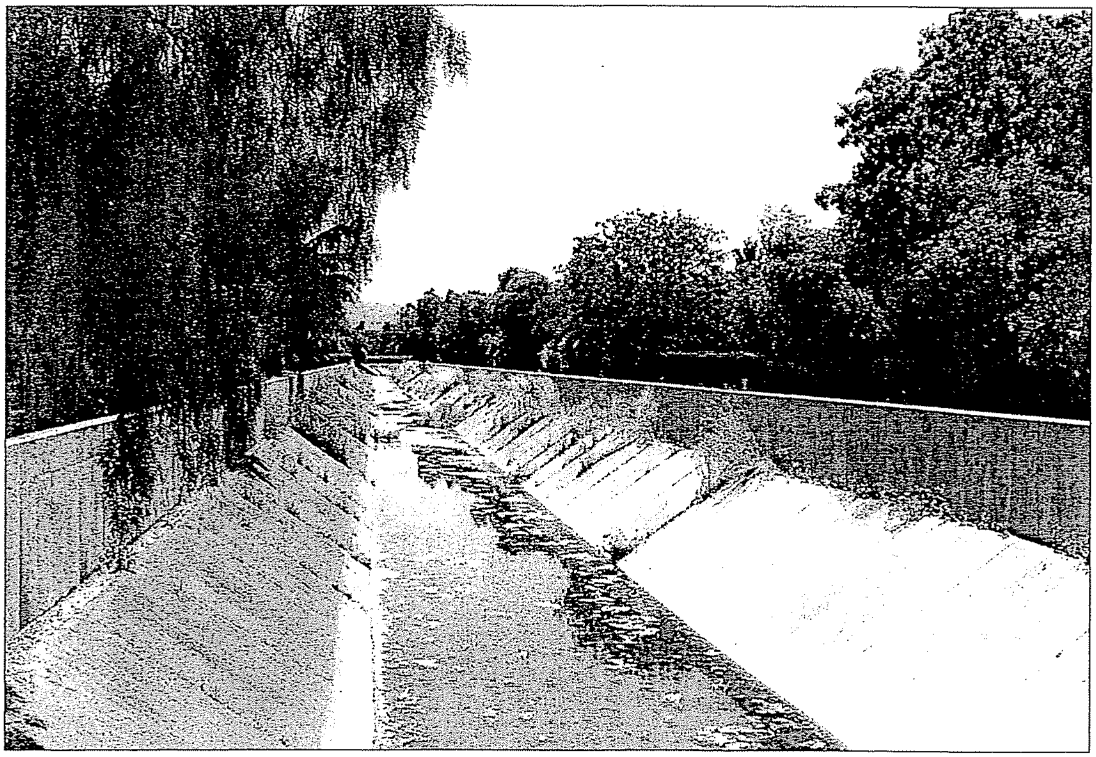

Photo 4: This photograph shows the existing Matadero Creek channel south of Louis Road. The existing floodwalls can be seen along the top of the channel banks. Single-family homes are located on both sides of the creek channel, behind the fences.

PHOTOS 3 AND 4

substantially modified. Such features may include, but are not limited to, hilltops, ridges, canyons, ravines, and rock outcrops.
- Removal of major stands of vegetation and/or trees which are a visually prominent feature of the landscape as seen from public area.
- Removal of visually prominent rock outcroppings, or
- Introduction of structures that are not of the same style of scale as surrounding development.

2. result in permanent structural development located within 0.5 miles of a designated scenic highway that would be highly visible in a way that detracts from the existing scenic quality and character of the corridor;
3. eliminate or substantially alter local, state, or federally designated historic buildings;
4. permanently and substantially obstruct or block any scenic vista or view corridor that is designated on local plans as a significant or important view corridor or scenic area; or
5. produce a new source of substantial light or glare, which would adversely affect day or nighttime views in the area or pose a nuisance. This includes ambient nighttime illumination levels that would be increased beyond the property line or use of highly reflective building materials.

Impacts Downstream of Highway 101

The proposed flood control improvements downstream of Highway 101 are not anticipated to result in significant long-term visual impacts because the proposed bypass structure would not block existing views or substantially alter the scenic resources of the creek channel. The proposed bypass channel would be constructed along the property line between the District's right-of-way and the MSC facility, in order to minimize the loss of riparian vegetation adjacent to the existing creek channel (refer to **Section VII. D., Vegetation and Wildlife**, of this EIR). The proposed bypass channel would not be visually obtrusive from Highway 101 or from the recreational pedestrian/bicycle trail along East Bayshore Road. Because the bypass channel would be located adjacent to the MSC facility, the channel would not interrupt the continuity of the natural vegetation of the existing creek channel and the Emily Renzel Marsh.

While the bypass channel would limit views from the MSC facility of the riparian vegetation to the northwest, the MSC property is not considered a view corridor, and therefore, this is not considered a significant visual impact.

However, construction of the proposed overflow bypass channel downstream of Highway 101 would require the temporary removal of riparian vegetation along the southeastern bank of the creek channel. As described in **Section VII. D,. Vegetation and Wildlife**, of this EIR, the project proposes to replant this area with native riparian vegetation. Because of the short-term nature of this visual impact, and because the project includes measures to mitigate for this temporal loss of vegetation and habitat, this is not considered a significant temporal visual impact.

- **The proposed flood control improvements downstream of Highway 101 would not result in significant long-term visual and aesthetic impacts. (Less Than Significant Impact) Construction of the proposed bypass channel would result in short-term visual and aesthetic impacts downstream of Highway 101. (Less Than Significant Temporary Impact)**

Impacts Upstream of Highway 101

Floodwalls and Headwalls Along Channel Banks

The project would result in significant visual changes along certain portions project reach upstream of Highway 101 because the project includes the extension of the floodwall heights along both sides of the creek channel and along the headwalls at certain bridge crossings. To meet FEMA freeboard criteria, headwalls as high as 5.0 feet above the existing sidewalk would be required on the upstream side of Greer Road Bridge. Existing floodwalls along the creek channel that are now 3 to 4 feet high would be raised by 1 to 2 feet in certain channel reaches. Generally, these floodwalls are located behind rear property line fences that are 2-3 feet taller than the existing floodwalls.

At Greer Road and Louis Road bridges, floodwalls and headwalls would be more visually obstructive than they are now. Matadero Creek is a concrete-lined channel between Greer Road and Alma Street, and the creek has little aesthetic value in some reaches (see photos 3 and 4). Other reaches, however, could be considered a scenic or aesthetic resource in this urban environment because they do contain some aquatic vegetation and occasional wildlife. The proposed height increase in the headwall across the upstream face of the Greer Road bridge, and for a distance upstream of the Greer Road Bridge and Louis Road Bridge, would block existing views of the creek channel. This would significantly alter the visual character of the area.

- **The proposed increase in floodwall and headwall heights would result in significant loss of views of the creek channel. (Significant Impact)**

Louis Road

As described previously, the project proposes the replacement and raising of the Louis Road Bridge. In order to maintain appropriate design site-distance requirements, the raising of the bridge structure would also require raising the roadway approaches to the bridge. The roadway approaches would gradually slope downward, away from the bridge, and transition to the existing Louis Road elevation. Because single-family residences are located along Louis Road adjacent to the creek channel, raising the roadway in front of these homes could incrementally change the views of the roadway from these residences. Due to the minimal nature of the roadway alteration, this would not result in significant visual impacts to these residences.

- **The proposed Louis Road bridge replacement and raising would not result in significant visual and aesthetic impacts to nearby residences. (Less Than Significant Impact)**

Maintenance Impacts

Maintenance activities associated with the operation of Matadero Creek and the bypass channel will be short term and within the creek channel. The presence of maintenance crews and equipment will not impact the visual character of the area.

- **Maintenance activities will not alter the visual character of Matadero Creek. (Less than Significant Impact)**

Visual and Aesthetic Issues not Associated with the Proposed Project

Implementation of the proposed project will not result in any permanent structural development within 0.5 miles of a scenic highway. In addition, the project will not eliminate or alter an historic building within a scenic highway corridor. Furthermore, the project will not introduce any materials to the project area that will provide a new source of light or glare. Therefore, the proposed project will not impact scenic highways and will not be a source of light and glare.

- **The proposed project will have no impact on any scenic highways and will not be a source of light or glare. (No Impact)**

3. Mitigation for Visual and Aesthetic Impacts

Mitigation Measures Proposed by the Project

The following mitigation measures are included in the project to reduce the visual and aesthetic impacts of the project:

- The project includes the revegetation of the existing riparian habitat along the southeastern bank of the Matadero Creek channel. The mitigation measures described in **Section VII. D., Vegetation and Wildlife**, of this EIR would be implemented to ensure revegetation of the channel area downstream of Highway 101.

- As part of the application for a Conditional Letter of Map Revision (CLOMR) from FEMA, the District has conducted a risk-based analysis to determine the site-specific freeboard necessary to pass the one percent flood discharge. Based on the analytical results, the District prepared a request to FEMA to apply risk-based freeboard criteria, and thus lower the required floodwall heights in several reaches along Matadero Creek. FEMA has approved this request, and the required headwall and floodwall heights in the reaches between West Bayshore Road and Ross Road have been significantly reduced. The highest headwall requirement in this stretch of creek is now 5.0 feet above the existing sidewalk elevation at the upstream face of Greer Road Bridge.

- Sidewalks along the Greer and Louis Road bridge crossings will be reconfigured to offset the increase in headwall heights, thus providing the same view of the creek for pedestrians as exists today.

- Temporary (removable) flood barriers, consisting of galvanized steel sill plates and end plates embedded in concrete with sealed aluminum planks will be installed along the maintenance access ramps at Greer and Louis Road bridges on a seasonal basis. The barriers will be set in place to achieve the necessary freeboard protection during the rainy season (mid-October through early May).

- The project design team will incorporate decorative architectural features, such as plantings or decorative bricks, into the headwall design at the Greer Road, Louis Road, and Waverley Street bridge crossings.

Conclusion: **Implementation of the proposed mitigation will reduce significant visual and aesthetic impacts to a less than significant level. (Less Than Significant Impact with Mitigation)**

I. CONSTRUCTION-RELATED IMPACTS

1. Existing Setting

Traffic Setting

Traffic congestion in the Bay Area is determined by a level of service standard[9] (LOS). Palo Alto considers LOS D as the minimum desirable level of service. Between 1993 and 1995 the City studied 20 intersections to determine traffic conditions in Palo Alto. Two of the intersections could be considered integral to the implementation of the proposed project. The intersections are Middlefield/Oregon Expressway and Middlefield/Colorado Avenue. The intersection of Middlefield/Oregon Expressway is LOS D in the AM peak hour and LOS E in the PM peak hour. The intersection of Middlefield/Colorado Avenue is LOS B in the PM peak hour. There was no data available for the AM peak hour at this intersection[10].

The City of Palo Alto has specific regulations pertaining to heavy truck traffic (exceeding a maximum gross weight of 7+ tons) within the city limits. The regulations are based on three road designations; these are through truck routes[11], local truck routes[12], and restricted streets[13]. Within the project area, there are two through routes (Highway 101 and Alma Street) and one local route (Oregon Expressway). All trucks with destinations in the City must use a through or local truck route and may deviate only by the shortest and most direct route to the destination. Furthermore, all trucks with destinations east of Middlefield Road must use through or local routes east of Middlefield Road. Similarly, all trucks with destinations to the west must use through or local routes west of Middlefield Road.

Air Quality Setting

Current air pollution problems in the Bay Area have resulted from its extensive industrial and urban development, especially from the widespread use of motor vehicles. The Federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate potions of the State where the Federal or State ambient air quality standards are not met as "nonattainment areas". Because of the differences between the national and state standards, the designation of nonattainment areas is different under the Federal and State legislation.

The Bay Area had, until recently, attained all Federal standards. In June of 1998, the U.S. Environmental Protection Agency (USEPA) reclassified the Bay Area from "maintenance area" to nonattainment area for ozone, based on violations of the Federal standard at several locations in the air basin.

- Under the California Clean Air Act, Santa Clara County is a nonattainment area for ozone and particulate matter (PM_{10}). The County is either an attainment area or unclassified for other pollutants.

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[9] Level of Service (LOS) is a qualitative scale that ranges from LOS A, indicating free flow conditions with little or no delay for drivers, down to LOS F, indicating extensive delays and congestion.

[10] Brady and Associates, Inc., 1996.

[11] A through truck route is any street upon which the unrestricted use of trucks is permitted.

[12] A local truck route is any street upon which an origin and/or destination in the City may operate but only between the hours of 7:00 am and 7:00 pm.

[13] Restricted streets are all streets in the City except through and local truck routes.

Noise Setting

The most pervasive noise source in Palo Alto is traffic noise. From 1991-92, 465 complaints were filed with the Palo Alto police for noise issues. Thirty seven percent were from construction activities and six percent were regarding street sweepers. The noise exposure for the upstream reach of the project site averages about 60 dB and increases to approximately 65 dB around major roadways. Downstream, noise levels range from 75 dB at Highway 101 to 60 dB in the PAFB. Noise levels for sensitive land uses (i.e., residential, schools, etc.) are acceptable up to 60 dB and conditionally acceptable up to 75 dB[14].

2. Construction-Related Impacts

Most of the noise impacts associated with the project would be construction-related, occurring over the short-term while the improvements are implemented. These activities include the construction of the bypass channel downstream of Highway 101, the replacement and raising of the Louis Road Bridge, the U-frame channel work near Louis Road, and the raising of the floodwalls. Construction would be phased over a period of approximately two years.

The short-term impacts of construction generally fall into two categories: 1) construction annoyances (such as traffic, noise, dust and debris, vibration and privacy impacts); and 2) the physical effects on adjacent properties from project construction activities (such as property damage and vegetation removal).

Temporary Traffic and Circulation Impacts

For the purpose of this project, a traffic impact is considered significant if during construction activities the project would:

1. cause extensive traffic delays (i.e., traffic is halted longer than 15 minutes due to temporary street and/or lane closures). Factors to consider include the length of the interruption, the amount of traffic, and the type of road classification;
2. conflict with adopted policies, plans, or programs supporting alternative transportation;
3. temporarily prevent access to residences or businesses for substantial periods of time (i.e., 15 minutes or longer);
4. cause prolonged interruption to transit services (i.e., interruption of access to bus stops);
5. cause a permanent increase in traffic which is substantial in relation to the existing traffic, an increase of three percent or more on streets or at intersection currently impacted (exceed local standards for acceptable LOS), or five percent or more on streets or at intersections that are not currently impacted;
6. result in permanent traffic increases that exceed, either individually or cumulatively, a level of service standard established by the local agency of the Santa Clara Valley Transportation Authority;
7. result in a roadway design that would increase traffic hazards to motor vehicles, bicycles, or pedestrians, or result in potentially unsafe conditions; or

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[14] Brady and Associates, Inc., 1996.

8. result in inadequate emergency access.

Implementation of the proposed project would result in temporary increases in traffic in the project area. Trucks and equipment needed for construction, and the rerouting of traffic from Louis Road, are the key contributors to this increase.

Based on City regulations, trucks and equipment will be entering the project site mainly from Louis Road on the north side of the creek. It is estimated that 240 cubic yards of materials will be excavated under the Louis Road Bridge to create the proposed U-frame channel and transition areas. In addition, the current Louis Road Bridge will have to be dismantled and hauled off site. Based on this information, it is estimated that excavation and demolition will generate approximately 20 truck trips[15] over a two-week period. Additional trips to and through the neighborhood near the creek will be needed to transport heavy equipment and workers to and from the specific stretch of creek where the work is occurring during demolition, excavation and construction. Once demolition and excavation are complete, the District assumes that 12-15 truck trips will be required and that a total of 12-15[16] workers will be on site at the height of project construction. The trips will occur throughout the day and will not significantly impact peak AM or PM commute traffic.

Haul trucks will be arriving and leaving throughout the day, and will not create a substantial change in peak hour levels of service. Construction workers will not be working on this site in large enough numbers or for long enough periods to cause significant increase in traffic congestion. However, the route on Louis Road does pass close to Ohlone Elementary School, located just off the corner of Louis Road and Amarillo Avenue, which could cause conflicts between trucks and school children or other pedestrians. This increased hazard would be a significant impact.

Temporary traffic circulation and access impacts would occur on Louis Road, during the replacement and raising of the bridge crossing. This road would temporarily be closed (approximately 6-9 months), which would cause traffic trips that normally use Louis Road to shift to other roadways in the area. While the temporary loss of this portion of Louis Road would impact traffic in the area, this impact is not significant, since it would be of a short-term nature, and since other east-west oriented streets (Greer Road and Ross Road) are easily accessible from Louis Road. All emergency services (i.e., police, fire, etc) will be notified of the date and duration of the road closure prior to demolition.

- **Based upon the above discussion, the project would result in significant short-term traffic conflicts between trucks and pedestrians near the elementary school. (Significant Temporary Impact)**

Temporary Air Quality Impacts

For the purposes of this project, an air quality impact during construction activities is considered significant if the project would:

1. For a stationary use or permanent project operations, result in a generation of emissions of or in excess of 80 pounds per day of reactive organic gases (ROGs),

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[15] One truck can haul approximately 20 cubic yards of material.

[16] The number of truck trips is not directly related to the number of workers on site.

nitrogen oxides (NOx), or particulates (PM10), or 550 pounds per day of carbon monoxide (CO);

2. Result in temporary generation of dust (PM10) due to sediment removal in stream or drainage channels equivalent to grading an area of 2.2 acres per day;
3. Expose sensitive receptors (i.e., residents, schools, hospitals) to substantial pollutant concentrations (i.e., those that exceed the Bay Area Air Quality Management District [BAAQMD] standards identified above;
4. Emit toxic or hazardous air pollutants resulting in a significant increased human health risk, in which the probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million, or ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI;
5. Create frequent objectionable odors, affecting a substantial number of people (500 or more), or create other nuisance problems; or
6. Conflict with or obstruct implementation of the Bay Area Air Quality Management Plan.

The project would not generate air pollutant emissions or increase the number of vehicle trips or vehicle miles traveled over the long-term, since it does not propose any new development or expansion of existing development. However, the construction of the channel improvements would result in temporary, localized vehicle emissions from trucks, bulldozers, and other gas-powered construction equipment. The emissions generated from construction would not constitute a significant impact but would contribute to the overall air pollution of the Bay Area. In addition, because construction activities are confined to small areas, localized pollution could affect sensitive receptors. Given the relatively short time frame for construction at any one location, emission levels will not be prolonged enough to constitute a significant impact, although they may create an annoyance to adjacent residents.

During project construction, temporary increases in dust emissions would occur from the movement of earth and structural materials, including the removal of existing concrete in the channel. Dust generated by the project could affect sensitive receptors in the area. To minimize dust and vehicular emissions standard BAAQMD and District BMPs[17] (listed under "Temporary Air Quality" in the mitigation section below) will be implemented.

- **Construction of the project would result in less than significant temporary air quality impacts. (Less Than Significant Temporary Impact)**

Air Quality Issues not Associated with the Proposed Project

Implementation of the proposed project will not result in any objectionable odors or generate toxic pollutants. All equipment used for construction and maintenance will be maintained based on District and BAAQMD BMPs. There would be no other source of objectionable odors or toxic pollutants on this project.

- **The proposed project will not create any objectionable odors or generate any toxic pollutants. (No Impact)**

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[17] District BMPs are based on BAAQMD Guidelines.

Temporary Noise Impacts

For the purposes of this project, a noise impact during construction activities is considered significant if the project would:

1. Expose persons to or generate permanent noise levels in excess of standards established in the local general plan, noise ordinance or applicable standards; or
2. result in a substantial permanent increase/change in the ambient noise level (i.e., a 5 dBA increase in an areas where the existing noise level is considered acceptable or a 3 dBA increase in areas where existing noise levels are not considered acceptable, as defined by state or local noise/land use compatibility standards) or generate noise levels in excess of 65 dBA CNEL at the property line that could affect residents, schools or hospitals;
3. create substantial and prolonged temporary increased noise levels over the course of the construction period, especially in residential areas during evening, weekend and nighttime hours or anytime within 1,000 feet of sensitive receptors (i.e., schools, hospitals); or
4. expose persons to or generate excessive, continuous ground borne vibration.

The proposed project would not result in long-term noise level increases, since it does not propose any new development or expansion of existing development.

The construction of the proposed improvements would result in short-term noise impacts from construction equipment upon surrounding land uses, including single-family residences and the MSC facility. The use of heavy equipment would result in high noise levels adjacent to the construction sites. A list of the noise levels from typical construction equipment is provided in Table 6, below. According to the table, all listed construction equipment exceeds the conditionally acceptable residential noise level of 75dB.

Demolition of the Louis Road Bridge could create short-term vibration that could be intermittently perceptible at adjacent houses. The demolition would be complete in one to two weeks. Nearby property owners will be informed of the demolition schedule prior to the start of construction. All work will also comply with the City of Palo Alto Noise Ordinance.

- **Based on the above discussion, construction of the project would result in significant temporary noise impacts and less than significant temporary vibration impacts. (Significant Temporary Impact)**

TABLE 7
TYPICAL NOISE LEVELS OF CONSTRUCTION EQUIPMENT

Equipment	Noise Levels at 25 Feet (decibels)
Backhoes/Gradeall	78-99
Loaders	78-90
Dump Trucks	89-100
Cement Trucks	89-100
Chain Saws	90-100
Pavement Breakers	82-92
Jackhammers	88-103
Pile Drivers	100-110

Temporary Privacy and Security Impacts

The project would result in short-term privacy and security impacts on homes adjacent to the areas of construction on the creek. Fences and other barriers may be removed and construction crews working adjacent to homes would temporarily infringe upon the privacy of backyard areas. Pets may also be affected by the removal of fences. The project proposes to install temporary construction fencing to replace any backyard fences removed during construction, to provide security and privacy. Permanent fences would be replaced in kind.

Although these privacy impacts would represent a temporary nuisance to affected residents, they do not represent a significant environmental impact.

- **Construction of the project would not result in significant privacy and security impacts. (Less than Significant Temporary Impact)**

Maintenance Impacts

Maintenance activities associated with the operation of Matadero Creek and the bypass channel could, for brief periods of time, result in temporary noise impacts to residents adjacent to the creek. However, standard District maintenance BMPs will be implemented to reduce any potential impacts to less than significant.

Temporary air quality impacts could result from sediment removal. Specifically, dust generation in dry areas of the creek and exhaust from the maintenance equipment could impact sensitive receptors located near the maintenance area. However, standard District maintenance BMPs will be implemented to reduce any potential impacts to less than significant.

Maintenance activities associated with the operation of Matadero Creek and the bypass channel will not impact local traffic. The staff and equipment necessary for maintenance is minimal and will not impact daily peak hour traffic on roads in and around the maintenance area.

- **Maintenance activities would not result in significant traffic, air quality or noise impacts. (Less than Significant Impact)**

Enhancement Impacts

Construction activities associated with the restoration of Mayfield Slough would have the same type of impacts as the proposed project. However, the impacts would be of a lesser degree because of the location of the site and the surrounding land uses. Construction traffic would not be required to travel through any residential areas and would not interfere with current traffic patterns. The PAFB is not adjacent to any land uses with sensitive receptors and acceptable noise levels in the PAFB are higher than in residential areas. Thus the use of construction equipment would not impact local residents. However, construction will have to occur outside the breeding season of any special status species in the project area that could be impacted by increased noise levels. Lastly, air impacts would be similar to those from the rest of the project, but would also be temporary. However, standard District BMPs would be implemented to reduce any potential construction related impacts.

Enhancements 1 and 3 are analyzed for potentially significant environmental impacts under CEQA, but not to the same degree as the proposed project. As a result, they are not part of the proposed project that is evaluated in this EIR, and would require further CEQA review prior to implementation.

- **Restoration of Mayfield Slough would result in less than significant traffic, noise, and air impacts during construction with the implementation of District BMPs. (Less than Significant Impact with Mitigation)**

3. Mitigation for Construction-Related Impacts

Mitigation Measures Proposed by the Project

The above discussion concluded that some of the construction-related impacts of the proposed project would be significant but temporary. The District has a standard set of Best Management Practices (BMPs) that are implemented as mitigation measures on all District projects to reduce common impacts associated with construction. The mitigation measures listed below will be incorporated into a Construction Management Plan, which will include community outreach, and will reduce all short-term, construction-related impacts to a less than significant level.

Temporary Traffic

- The District will coordinate with the City of Palo Alto and Palo Alto Unified School District to increase the number of crossing guards located along Louis Road in the vicinity of Ohlone Elementary School. The crossing guards will be located at various points along Louis Road at appropriate morning and afternoon times to assist children going to and from school during construction in this area.

- A detour plan for through traffic that would normally use the Louis Road bridge would be implemented to minimize potential traffic impacts on the roadways near the Louis Road Bridge crossing. This detour plan would be coordinated with the City of Palo Alto. It is currently anticipated that vehicular and pedestrian traffic would be re-routed to Greer Road and Ross Road via Loma Verde Avenue and Colorado Avenue.

Temporary Air Quality

1. Earthmoving or other dust-producing activities would be suspended during periods of high winds.

2. All exposed or disturbed soil surfaces would be watered at least twice daily to control dust. (See District BMP 32)

3. Stockpiles of soil or other materials that can be blown by the wind would be watered or covered. (See District BMP 32)

4. All trucks hauling soil, sand, and other loose materials would be covered and all trucks would be required to maintain at least two feet of freeboard. (See District BMP 32)

5. All paved access roads, parking areas and staging areas at construction sites would be swept daily (with water sweepers). (See District BMP 32)

6. Traffic speeds on unpaved roads would be limited to 15 mph. (See District BMP 32)

7. Vegetation in disturbed areas would be replanted as quickly as possible.

Temporary Noise

- Construction activities would be conducted in accordance with all City of Palo Alto Noise Ordinances, which typically limit construction activity to the period between 7:00 AM and 6:00 PM Monday through Friday, and 9:00 AM and 6:00 PM on Saturday.

- The contractor would be required to use "new technology" power construction equipment with state-of-the-art noise shielding and muffling devices. All internal combustion engines used on the project site would be equipped with adequate mufflers and would be in good mechanical condition to minimize noise created by faulty or poorly maintained engine, drive-train and other components

Temporary Privacy and Security

- Prior to removal of any private fence, or fence adjacent to private property, the District will notify the occupant of the property of the fence removal.

- The District would install temporary construction fencing to replace any backyard fences, in the event any fences must be removed during construction, to provide security and privacy. Any permanent fences removed would be replaced in kind.

Conclusion: **The project would not result in significant construction-related impacts with implementation of the above listed mitigation measures. (Less Than Significant Impact with Mitigation)**

J. UTILITIES

1. Existing Setting

There are many places where existing utility lines cross the project portion of the Matadero Creek channel. These are primarily found at the road and bridge crossings, including Louis Road, and East Bayshore Road adjacent to Highway 101. In addition, there are two buried 60 kilovolt (kV) electric transmission lines, a sanitary sewer line, and a buried communications cable within the Matadero Creek channel.

Downstream of Highway 101

There are several utilities within or adjacent to the East Bayshore Road alignment. A 10-inch water line and a four-inch gas line are located within East Bayshore Road. In addition, a 20-inch Pacific Gas & Electric high-pressure gas main and an 18-inch sanitary sewer line are located along the northeast side of the roadway.

Upstream of Highway 101

Two buried 60 kilovolt (kV) electric transmission lines are located within the northern bank of the Matadero Creek channel. The 60 kV lines are reportedly encased in insulating oil and/or thermal sand backfill. The lines are maintained by Palo Alto Light and Power, and enter the right-of-way approximately 600 feet upstream of Highway 101, and continue parallel to the channel to Alma Street. The exact location of the 60 kV lines is unknown.

A 15-inch VCP sanitary sewer line and manholes are also located along the northern bank of the creek channel. A buried 21-inch communication cable and steel casing also runs through the northern bank of the Matadero Creek channel. In addition, there is an existing four-inch gas line and a six-inch water line within Louis Road.

2. Utilities Impacts

For the purposes of the project, a utility and service impact is considered significant if the project would:

1. cause prolonged interruption to utility services due to construction (i.e., interruption of service for longer than eight hours);
2. result in demands for public services or utilities that exceed service capacities and would require additional facilities, staff or equipment in order to maintain acceptable service ratios, response times or other performance objectives - related to fire protection, police protection, schools or parks;
3. result in wastewater flows that exceed sewer line or treatment plant capacity, contribute substantial increases in flows to existing impacted sewer lines or require substantial expansion of wastewater collection or treatment facilities, the construction of which would cause significant environmental effects;
4. exceed wastewater treatment requirements established by the RWQCB;
5. result in water demand that exceeds the capacity of the water supply or infrastructure system or would require substantial expansion of water supply, treatment or distribution facilities (i.e., project demand exceeds capacity);

6. generate solid waste in an area served by a landfill with limited and/or insufficient permitted capacity to accommodate the project; or
7. result in non-compliance with federal, state, and/or local statutes and regulations related to solid waste.

The project would not result in an increased demand for services or utilities since the project does not propose any new development or expansion of existing development. The project would, however, require construction work around and near existing utility lines and could require the temporary relocation of utility lines.

Downstream of Highway 101

Construction of the overflow bypass channel downstream of Highway 101 would not require work directly adjacent to or under East Bayshore Road, and therefore, would not impact the existing utility and service lines located at East Bayshore Road.

- **The project would not result in significant construction-related utility and service impacts near East Bayshore Road. (Less Than Significant Impact)**

Upstream of Highway 101

Replacement of Louis Road Bridge Crossing

The project would require the temporary relocation of utility lines (including the existing four-inch gas line and six-inch water line) in Louis Road during the bridge replacement and raising. The proposed bridge crossing replacement and raising at Louis Road, and subsequent relocation of utilities, would result in temporary impacts such as short-term service interruptions. The District would work with the utility companies to notify customers in advance of such interruptions. The District or utility company would repair and/or replace any utility lines that may be impacted during project construction.

- **The project would not result in significant construction-related utility and service impacts near Louis Road, due to their short-term nature. (Less Than Significant Impact)**

Construction of U-Frame Channel Near Louis Road

As described above, there are two buried 60 kilovolt (kV) electric transmission lines, which are encased in insulating oil and/or thermal sand backfill, present along the northwestern bank of the Matadero Creek channel. The exact location of these lines is unknown. The presence of these electric lines would constrain construction activities within the channel area. The electric lines are a high-risk utility, and temporary or permanent relocation of these lines is not considered feasible. While leaks from these lines have not been reported, the presence of the 60 kV transmission lines, and the fact that the exact location of these lines is not known, could present a significant hazard to construction workers and nearby residents in the event one of these lines is broken during project construction.

In addition, a sanitary sewer line, and a buried communications cable also run along the northeastern side of the Matadero Creek channel. These lines would need to be protected or temporarily relocated during construction of the U-frame channel. A break in the sanitary line could result in a health risk, as well as service impacts.

- **The project could result in significant construction-related utility and service impacts during construction of the U-frame channel near Louis Road. (Significant Impact)**

Maintenance Impacts

Maintenance activities associated with the operation of Matadero Creek and the bypass channel will occur within the channels and will not come in contact with or interfere with the operations of local infrastructure. Santa Clara County has landfill capacity for more than 30 years, according to the County Integrated Waste Management Plan. The District has an ongoing agreement with a local landfill for disposal of sediment removed during maintenance activities. Ample landfill space exists to dispose of the solid waste (sediment) removed during project maintenance.

- **Maintenance activities will not result in significant impacts to utilities or services. (No Impact)**

Utility Issues not Associated with the Proposed Project

Implementation of the proposed project would not increase the amount of wastewater sent to local treatment facilities. In addition, the project would not increase general water use in the Palo Alto area. Furthermore, because the project does not add to the population of the area, it will have no impact on fire and police protection services, schools and recreational facilities. Lastly, the project will produce solid waste in the form of sediment removed from the channel during construction and maintenance. Therefore, the proposed project will not impact water use, wastewater treatment, police and fire protection services, schools, or parks.

- **The proposed project will have no impact on water use, wastewater treatment, police and fire protection services, schools, parks, and local landfills. (No Impact)**

3. Mitigation for Utilities Impacts

Mitigation Measures Proposed by the Project

The following measures are included in the project to reduce potential utilities and service impacts:

1. The exact location of the 60 kV electric lines would be determined and verified prior to construction activities within or adjacent to the channel near Louis Road. All excavations to verify the existing 60 kV trench location would be done by hand methods only.

2. The edge of any permanent structure would not be constructed within two feet of the edge of the existing 60 kV trench and thermal sand backfill.

3. The edge of any part of temporary shoring or holes required for construction would not be within two feet of the edge of the existing 60 kV trench and thermal sand backfill.

4. Construction operations and methods would be selected that minimize vibrations and other potential impacts to the existing lines, to the extent feasible.

5. All planned construction operations within the vicinity of the existing 60 kV lines would be coordinated with Palo Alto Light and Power during final design.

6. All underground utilities would be protected and/or relocated during project construction as necessary. Any damage to these utilities would be repaired and/or replaced by the District.

Conclusion: **With implementation of the above mitigation, the project would result in less than significant impacts to utilities and services. (Less than Significant Impact with Mitigation)**

K. CUMULATIVE IMPACTS

Cumulative impacts, as defined by CEQA, refer to two or more individual effects, which when combined, are considerable or which compound or increase other environmental impacts. Cumulative impacts may result from individually minor, but collectively significant projects taking place over a period of time. The CEQA Guidelines (Section 15130) state that an EIR should discuss cumulative impacts “when the project’s incremental effect is cumulatively considerable”. The discussion does not need to be in as great detail as is necessary for project impacts, but it is to be “guided by the standards of practicality and reasonableness”. The purpose of the cumulative analysis is to allow decision makers to better understand the potential impacts which might result from approval of past, present and reasonably foreseeable future projects, in conjunction with the proposed project.

Therefore, CEQA mandates that the impacts of the proposed Matadero Creek flood control project be analyzed in conjunction with other related past, current, and probable future projects whose impacts might compound or interrelate with those of the project.

The nature of this project is such that most of its impacts occur in or immediately adjacent to the creek channel and the PAFB. Further, the impacts are of a type that is specific to waterways (i.e., type of vegetation impacted, visual impacts of bridges, etc.). Other non-waterway-related impacts from this project (such as traffic) are so small that they would be considered *de minimus* in any context.

Only construction related impacts (noise, dust, vehicle exhaust) might make a greater than *de minimus* contribution to cumulative impacts, but only if other construction projects were to occur nearby and at the same time. A record search by the District was done pursuant to District Ordinance 83-2 which requires that all work within creeks or within 50-feet of the top of bank obtain a District permit. The record search indicated that virtually all non-District projects proposed in the project vicinity are minor improvements to existing facilities. There are also permits for two non-contiguous new single-family homes. None of these projects would have impacts which, considered in combination with the impacts of the proposed improvements to Matadero Creek, would result in cumulatively considerable impacts.

The context in which impacts from this project may be cumulatively considerable is the combined impacts of this and other waterway-related projects in this area.

The improvements proposed for the Matadero Creek flood control project are in addition to flood protection projects that have been implemented on Matadero and Barron Creeks. These past projects have controlled flows in Matadero and Barron Creek upstream via a diversion that limits flows in both channels. Future District projects include flood protection projects on Adobe, Permanente, and San Francisquito Creeks. Adobe Creek will also have new bank protection and there will be some levee restoration on San Francisquito Creek. All of these projects are anticipated to occur between 2002 and 2016. In addition, all the creeks listed will continue to have regular maintenance performed as required.

The Palo Alto Flood Basin is a highly managed system that retains water from storm events and releases the water into San Francisco Bay on low tides. Matadero, Barron and Adobe Creeks all flow into the Palo Alto Flood Basin. In addition, Permanente and San Francisquito Creeks flow into San Francisco Bay at the edges of the PAFB. No future flood protection projects would be necessary on either Matadero or Barron Creeks. Flood protection levees surrounding the Palo Alto Flood Basin could be raised in the future in order to be certified by FEMA.

1. Cumulative Impacts

The proposed project, in combination with the planned projects identified, is not expected to result in significant cumulative impacts due to the short-term nature of most of these impacts. The only exception is the potential for cumulative impacts upon vegetation and wildlife. The potential for cumulatively considerable impacts to occur is discussed below.

Vegetation and Wildlife

Impacts to sensitive resources within the PAFB from the Matadero Creek flood protection project would be relatively minimal because of the placement of the bypass channel within highly disturbed areas adjacent to the Flood Basin. Nonetheless, some impacts to riparian and wetland habitats would occur as a result of this project. Future projects in this area also have the potential to impact biological resources in the PAFB and the individual creeks that the projects occur on. However, Adobe, Permanente, and San Francisquito are all highly disturbed habitats and the pending projects will not contribute to a substantial overall loss of sensitive habitat in the area. Furthermore, the watershed that encompasses Matadero, Adobe, Permanente and San Francisquito Creeks has ample District owned mitigation sites available to compensate for lost habitat from future projects. Lastly, the projects will be implemented over a 14-year period. As a result, mitigation plantings will have time to mature between projects, providing a more stable environment for sensitive species in the PAFB and the watershed. Therefore, currently pending and proposed District projects will have a less than significant cumulative impact on the biological resources within the watershed.

- **All known future and proposed District improvement and maintenance projects will have a less than significant cumulative impact on biological resources. (Less Than Significant Impact)**

Maintenance Impacts

Maintenance activities associated with the operation of Matadero, Barron, Adobe, Permanente and San Francisquito Creeks will not result in any significant cumulative impacts. Maintenance of these creeks would not occur simultaneously and would follow the guidelines presented in the Stream Maintenance Program.

- **Maintenance of Matadero, Barron, Adobe, Permanente and San Francisquito Creeks will not result in a significant cumulative impact. (No Impact)**

2. Mitigation for Cumulative Impacts

- No mitigation is required.

Conclusion: **The project would result in less than significant cumulative impacts upon vegetation and wildlife. (Less Than Significant Cumulative Impact)**

SECTION VIII
ALTERNATIVES TO THE PROPOSED PROJECT

Section 15126.6 of the CEQA Guidelines requires that an EIR describe a reasonable range of alternatives to the proposed project that could feasibly attain most of the project objectives and would avoid or considerably reduce any of the significant impacts of the proposed project. In addition, the No Project Alternative must be analyzed in the document.

The purpose of this section is to ascertain whether there are alternatives of design, scope, or location which would substantially lessen the significant impacts of the proposed project, even if those alternatives "impede to some degree the attainment of the project objectives" or are more expensive [Section 15126.6(b)].

The planning study process included a comprehensive evaluation of the entire hydrologic/hydraulic system of Matadero and Barron Creeks. As part of the planning study, an analysis of the PAFB was conducted to incorporate the PAFB's present physical and operational conditions into the evaluation of the creek channel hydraulics in the lower reaches of Matadero Creek. From this hydraulic analysis, it was recognized that some combination of flood control measures would likely be required to meet the flood protection objectives of the project. Various alternative project components were identified and evaluated as part of the planning study. These alternative components were evaluated based on their ability to reduce significant impacts caused by the implementation of the proposed project. Of the alternatives identified, the Renzel Marsh Alternative was determined to be infeasible regardless of the potentially significant impacts resulting from the proposed project. This alternative would have diverted flood flows in excess of existing capacity into Emily Renzel Marsh through a spillway cut into Matadero Creek□s northern levee. The spillway would be approximately 200-feet wide and located just downstream of East Bayshore Road. To provide sufficient backwater relief at Highway 101, the crest of the spillway would be set at an elevation of 3.5 feet NGVD

The use of Emily Renzel Marsh would require the construction of containment levees within the bayland that could alter the hydrology of the marsh environment. Construction of the levees would impact marsh habitat. Some riparian habitat would also be impacted during the construction of the spillway. Furthermore, sediment transport behavior downstream of Highway 101 indicates that much of the suspended load would be discharged into the marsh during high flow events. The sediment load could impact the marsh habitat and would require maintenance. Other issues associated with this alternative include procuring right of ways for construction, and indicated lack of community support. Based on the analysis, it has been determined that this alternative does not reduce potentially significant environmental impacts in comparison to the proposed project and does not feasibly attain the objectives of the project. Therefore, this alternative was eliminated from further consideration.

The proposed project has resulted in several significant impacts that can be mitigated. The visual and aesthetic impacts of the proposed headwall heights across one bridge can be mitigated through one or more of the measures provided in Section VII-H. Two additional impacts, which will require substantial mitigation to reach a less than significant level, are due to the proposed bypass and construction in an area of contaminated soil or groundwater. The proposed bypass channel would result in the loss of wetland and riparian habitat. There is not enough land available to mitigate for the impact on-site. Therefore, a substantial amount of off-site mitigation will be required to reduce this impact to a less than significant level.

The proposed bypass channel would be located adjacent to the MSC. There are soils and groundwater in this area contaminated with high levels of diesel-range petroleum and gasoline-range petroleum hydrocarbons. Construction could introduce contaminated soil or groundwater into the creek channel or the PAFB. Both of the impacts have been reduced to less than significant in the proposed project.

The discussion below addresses possible alternatives that could feasibly reduce or avoid impacts caused by the proposed downstream and upstream improvements. There is also a discussion of the "no project" alternative. The alternatives were identified through consultation between responsible agencies and the District, based on the objectives of the project.

A. VISUAL IMPACT ALTERNATIVES

Two alternatives were identified that would reduce the visual impacts from the proposed project. However, the District investigated possible alternatives and could not identify any alternative that would reduce the visual impact to a less than significant level. (See page 102 for additional measures to reduce visual impacts) Therefore, regardless of the final design for the upstream reach of Matadero Creek, implementation of flood control measures would create a significant, unavoidable visual impact.

Off-Stream Storage Alternative

The purpose of this alternative would be to reduce the peak flows conveyed through Matadero Creek and thus reduce the scope of channel remediation. This alternative would construct a 130 acre-foot flood storage basin on a 20-acre site near the intersection of Foothill Expressway and Page Mill Road on Stanford University land. During high flow events, water from Matadero Creek would overflow through a spillway structure into a holding pond for detention and eventual release back into Matadero Creek.

Construction of this alternative would eliminate the need for floodwall improvements upstream of Ross Road and would reduce the floodwall and headwall height needed at Louis Road and Greer Road by more than 1 foot compared to the proposed project. However, the project would still have a significant visual impact. Furthermore, due to the necessary location of the storage basin, implementation of this alternative could impact riparian habitat and red-legged frog populations.

The Off-Stream Storage Alternative could reduce aesthetic impacts compared to the proposed project, and it meets the basic objectives of the project. However, this alternative would impact biological resources in the upstream reach of the project site. Specifically, the site is known to have red-legged frog habitat and to be occupied by red-legged frogs.[18] The loss of habitat or individuals would result in a significant impact. Because the project would have significant additional environmental impacts this alternative is not environmentally superior to the proposed project. Furthermore, as stated in the Engineers Report on page 5-12, the total cost of this alternative is estimated to be $40,000,000 compared to $6,000,000 for the proposed project.

---

[18] Project Biologist Eric Webb has documented the presence of red-legged frogs on previous work done on that site.

Channel Modification Alternative

The purpose of this alternative would also be to reduce the visual impacts from increased floodwall and headwall heights along the upstream reach of Matadero Creek. This alternative would construct a 36-foot wide U-frame concrete channel to replace the existing concrete trapezoidal channel from Greer Road Bridge to Alma Street instead of the much shorter segment only under the Louis Road Bridge. A low-flow fish channel would be included, as would reconstruction of the existing maintenance access ramps. Floodwalls would be added as necessary to provide freeboard and the Louis Road Bridge would be replaced and raised as discussed in the proposed project.

Construction of this alternative would take place within the concrete-lined portion of the existing creek channel. Environmental impacts associated with the U-frame channel, increasing floodwall/headwall heights, and the raising of Louis Road Bridge would duplicate the impacts discussed for the proposed project. In particular, the visual impact of floodwall/headwall improvements would be similar to the proposed project at the Greer Road and Louis Road bridge crossings. However, floodwalls would no longer be required upstream of Ross Road, so the overall visual impact would be reduced but it would not be reduced to less than significant. The impacts of construction adjacent to existing residences would be increased since in-channel work would occur over a much longer distance. Nevertheless, construction impacts would be temporary and BMPs would be implemented to reduce all construction-related impacts to less than significant levels. Therefore, the channel modification alternative is a feasible alternative to the proposed project for reducing visual impacts. However, as stated in the Engineers Report on page 6-55, the total cost of this alternative is estimated to be $30,000,000 compared to $6,000,000 for the proposed project.

B. BIOLOGICAL IMPACT ALTERNATIVES

Two alternatives were identified that would reduce biological impacts created from the proposed project. Neither alternative would avoid all impacts to biological resources, but either of the alternatives would reduce the overall biological impact compared to the proposed project.

Underground Bypass Alternative

To minimize intrusion into the riparian corridor and meet the flood control requirements of the project, this alternative would construct a 40-foot wide, 8-foot high box culvert under East Bayshore Road. A sediment basin would be excavated just downstream of the pedestrian/bicycle bridge to trap sediment and minimize sediment accumulation in the box culvert itself. Flood flows would be diverted into the box culvert via an inlet structure and would discharge into the PAFB just south of the MSC property. (See Figures 12 and 13)

The culvert would span the entire roadway of East Bayshore, requiring substantial utility relocation and elevating the roadway to at least 6 feet NGVD (the road is presently built at 4-5 feet NGVD). This alternative would also require modifications to the main entrance road of the MSC and other driveways along the alignment in order to provide safe vehicular access.

Approximately 0.42 acres of potential CDFG jurisdictional habitat would be impacted as a result of the sediment basin. Some wetland vegetation will be impacted immediately downstream of Highway 101, which would be a loss of habitat for the San Francisco garter snake (if it is present in the area). No pickleweed is present in the construction area, so salt marsh harvest mouse habitat would not be impacted. A total of 1.1 acres of mitigation area would be required for this alternative.

Adequate mitigation sites are available to compensate for the loss of habitat. This alternative results in the removal of less habitat then the proposed project. Therefore, this project is more consistent with Section 404 guidelines that encourage avoidance of habitat impacts in preference to replacement mitigation.

Regular sediment and debris maintenance would need to be strictly enforced to maintain conveyance capacity. In addition, safety provisions would need to be followed for work within this confined and potentially hazardous space. Maintenance, therefore, is substantially more difficult with this alternative than with the proposed project. This alternative, however, would impact significantly less overall habitat because of the location of the channel. Therefore, less mitigation area would be required for the loss of habitat and fewer wildlife individuals would be impacted, directly or indirectly, as a result of the project. Impacts from this alternative include the temporary closure of East Bayshore Road, access problems to property fronting East Bayshore Road during construction, and the temporary disruption of utility services in the area.

The Underground Bypass Alternative does reduce biological impacts compared to the proposed project, and meets the basic objectives of the project. Therefore, the underground bypass is a feasible alternative to the proposed project for reducing biological impacts, but it does not reduce any significant impacts of the project. This alternative, however, does create infrastructure and land use impacts not caused by the proposed project. But, all infrastructure and land use impacts could be minimized through mitigation. In addition, as stated in the Engineers Report on page 6-24, the total cost of this alternative is estimated to be $15,000,000 compared to $8,000,000 for the proposed project.

C. HAZARDOUS MATERIALS ALTERNATIVES

Three alternatives have been identified that would reduce or avoid the level of hazardous materials impacts of the proposed project.

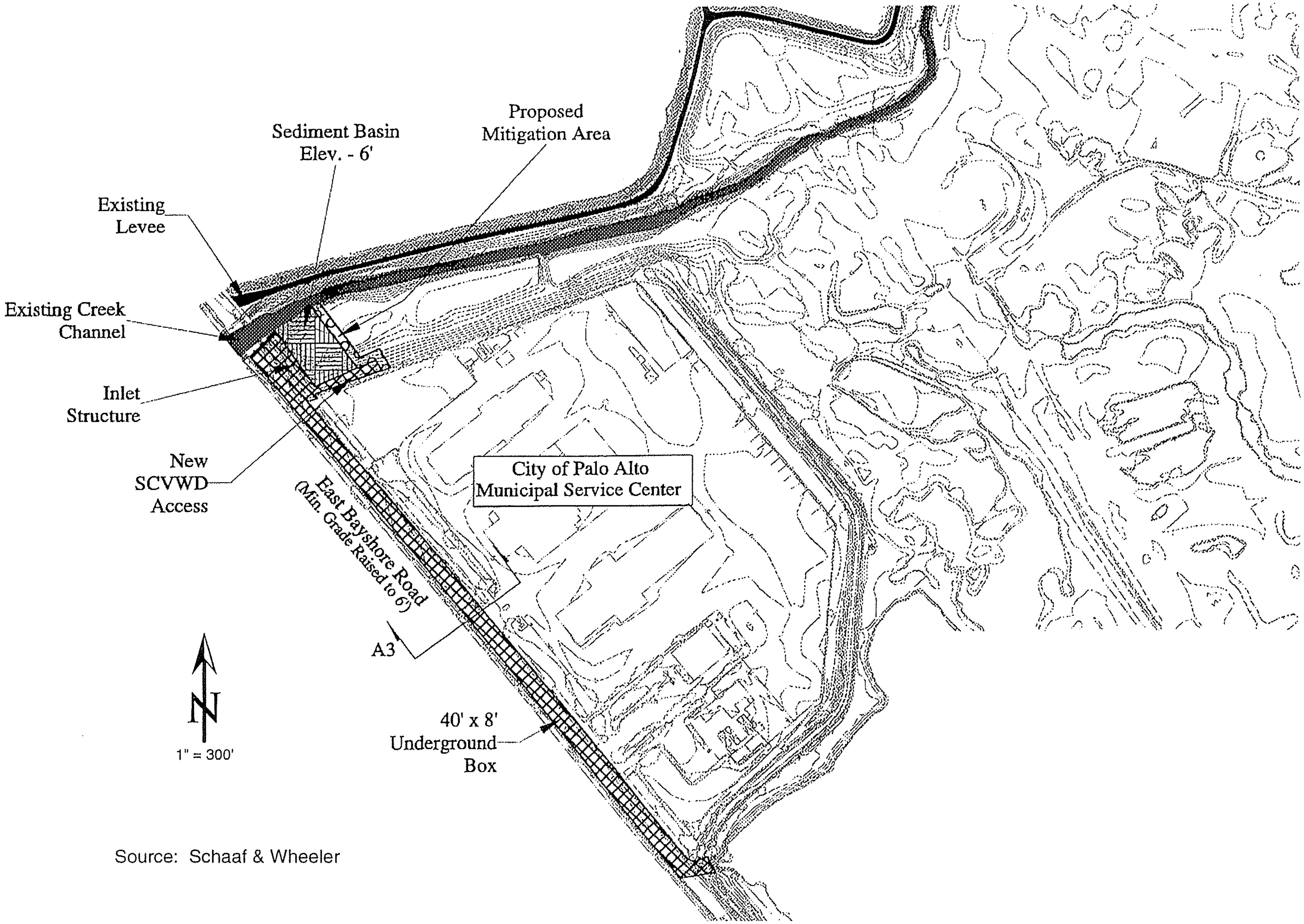
Channel Restoration circa 1971 Alternative

To restore water surface elevations at Bayshore Freeway to their original design level, the downstream channel could be returned to its 1971 condition by removing established sediment and vegetation. Approximately 20,000 cubic yards of material would need to be removed to meet flood capacity requirements.

This alternative would result in the loss of the entire existing riparian corridor along the southern overbank area of Matadero Creek below Bayshore Freeway. Approximately 3.4 acres of potential CDFG jurisdictional habitat and approximately 0.66 acres of potential US Army Corps of Engineers jurisdictional habitat would be impacted as well as several special-status wildlife species, including the salt marsh harvest mouse and the federally listed steelhead rainbow trout. A total of 11.5 acres of land would be required for riparian and wetland mitigation (compared to 2.56 acres for the proposed project), the majority of which would have to be found offsite. At the present time approximately 2.3 acres of mitigation area have been identified[19]. In addition, rigorous and frequent maintenance would be required in the future to maintain the channel.

---

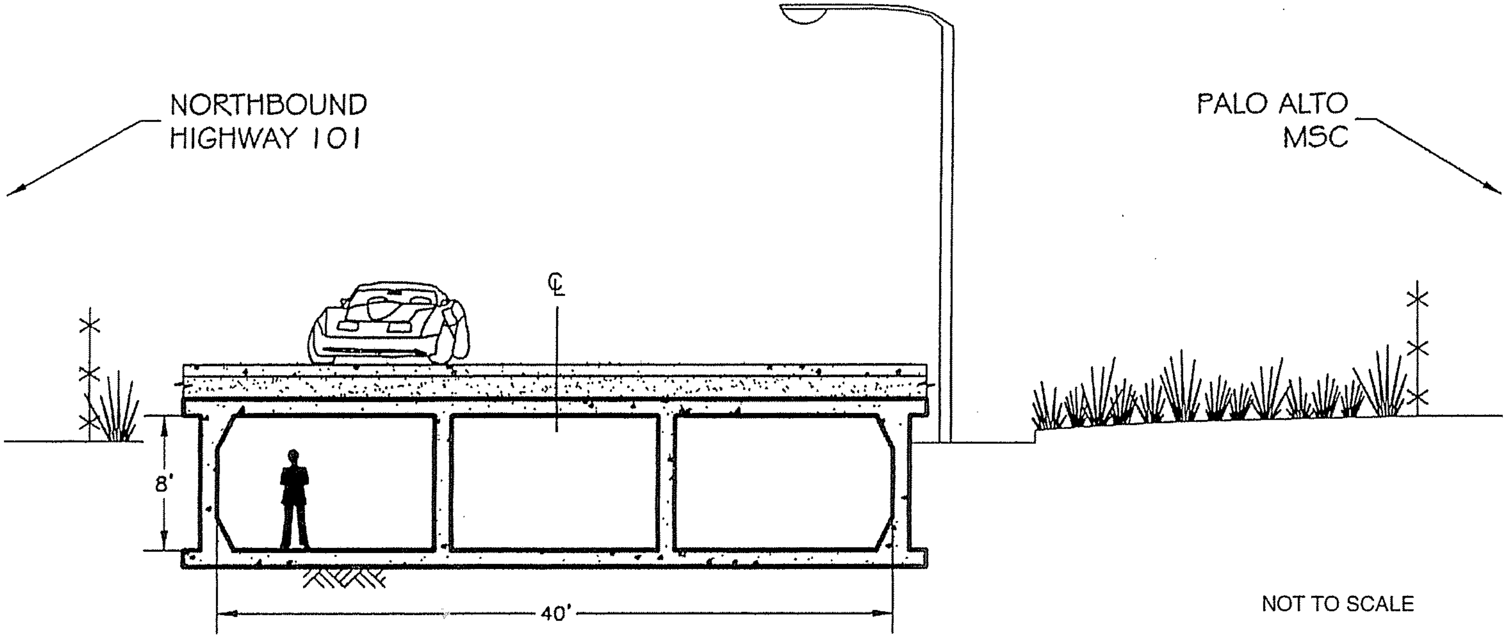
[19] The Engineer's Report discusses off-site mitigation areas that are not analyzed in this report. Specifically, land in the general vicinity of the project site that is owned by Stanford University. This area was not taken into account for this analysis because the District is not in any agreement with Stanford University to purchase or lease the land in perpetuity. Therefore, there is no guarantee of acquiring the land and it cannot be considered a viable mitigation site at this time.



Source: Schaaf & Wheeler

UNDERGROUND BYPASS ALTERNATIVE PLAN VIEW

FIGURE 12



Source: Schaaf & Wheeler

UNDERGROUND BYPASS ALTERNATIVE CROSS-SECTION

FIGURE 13

Restoration of the creek channel would not require the project to utilize contaminated land adjacent to the MSC property. As a result, this alternative avoids the significant hazardous materials impact created by the proposed project. However, this alternative would create a more significant biological impact than the proposed project. Because this alternative would result in greater biological impacts than the proposed project, it is not considered to be environmentally superior.

Expanded Floodway Alternative

To restore flood flow conveyance downstream of Highway 101, a 50-foot wide floodway could be created alongside the existing creek channel. The floodway would need to begin just downstream of the bicycle/pedestrian bridge adjacent to East Bayshore Road and extend approximately 1,600 feet toward the PAFB. A maintenance access road could be built east of the MSC where the existing levee is located. Any stands of Giant Reed would be completely removed. Because of the required maintenance, the bottom of the floodway would need to be covered with a hard maintenance floor.

This alternative would result in the loss of approximately 3.16 acres of potential CDFG jurisdictional habitat. This alternative would also impact approximately 0.40 acres of potential US Army Corps of Engineers jurisdictional habitat consisting of high quality wetlands. A total of 10 acres of land would be required for riparian and wetland mitigation, most of which would have to be found off-site. Taking into account identified on-site and off-site mitigation areas, this alternative would have a net deficit of over 5.0 acres. In order to meet flood capacity requirements, the floodway and the creek channel would require vigorous ongoing maintenance.

Expanding the existing floodway would not require the project to utilize contaminated land adjacent to the MSC property. As a result, this alternative avoids the significant hazardous materials impact created by the proposed project. However, analysis shows that this alternative creates a more significant biological impact than the proposed project. Because this alternative would result in greater biological impacts than the proposed project, it is not considered to be environmentally superior.

Underground Bypass Alternative

As discussed under **Section VIII. B., Biological Impact Alternatives**, this alternative would construct a 40-foot wide, 8-foot high box culvert under East Bayshore Road. A sediment basin would be excavated just downstream of the pedestrian/bicycle bridge to trap sediment and help minimize sediment accumulation in the box culvert itself. Flood flows would be diverted into the box culvert via an inlet structure and would discharge into the PAFB just south of the MSC property. (See Figures 12 and 13)

The benefit of this alternative is that contaminated soil and groundwater located along the northern property line of the MSC would be avoided during construction. This would completely eliminate the significant hazardous materials impact created by the proposed project. However, this alternative would require the temporary closure of East Bayshore Road, create access problems to property fronting East Bayshore Road during construction, and the temporarily disrupt utility services in the area.

Based on the analysis, it has been determined that the Underground Bypass Channel Alternative does avoid potential environmental impacts associated with hazardous materials (in the downstream reach) in comparison to the proposed project and meets the basic objectives of the project. This alternative, however, does create infrastructure and land use impacts not associated with the proposed project. But all infrastructure and land use impacts could be minimized through mitigation. In addition, as stated in the Engineers Report on page 6-24, the total cost of this alternative is estimated to be $15,000,000 compared to $8,000,000 for the proposed project.

D. NO PROJECT ALTERNATIVE

The No Project Alternative would continue current operations and maintenance procedures along Matadero Creek from Alma Street to the PAFB.

Under this alternative, local residents within the floodplain would continue to face potential flooding hazards. The upstream reach does not have the capacity or floodwall height necessary to adequately convey a 1 percent (100-year) flood flow. Therefore, flood flows would overtop the banks of Matadero and Barron Creeks during a 100-year flood and inundate nearby properties. In addition, the capacity of the Matadero Creek channel downstream of Highway 101 would continue to decrease as the channel fills with sediment and vegetation. This alternative would necessitate the mapping of a substantial new floodplain and increase the flood insurance burden within Palo Alto. Without proposed improvements the Louis Road Bridge may be damaged during a 100-year storm. However, the No Project Alternative would not result in any new significant impacts.

Based on the analysis, it has been determined that the No Project Alternative would avoid those impacts that are significant but reduced to less than significant in the project including hazardous materials and biological impacts. In addition, the significant unavoidable visual impact of the proposed project would be avoided. However, this alternative does not reduce the flooding hazard in the area and does not meet the objectives of the project.

E. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The environmentally superior alternative for the downstream reach is the underground bypass channel. This alternative significantly reduces the impact to biological resources and would allow all mitigation plantings to be done on-site. Furthermore, this alternative avoids the contaminated soil located on and adjacent to the MSC property. However, the underground bypass channel would create significant traffic and circulation impacts for the properties adjacent to East Bayshore Road. In addition, as stated in the Engineers Report on page 6-24, the total cost of this alternative is estimated to be $15,000,000 compared to $8,000,000 for the proposed project.

The environmentally superior alternative for the upstream reach is the U-frame channel modification from the Greer Road Bridge to Alma Street. This alternative somewhat reduces the significant, unavoidable visual impact that would result from the increase in floodwall and headwall heights along Matadero Creek. The additional channel work could impact existing ruderal, aquatic, and developed habitat, as well as nesting swallows. However, these impacts would also occur with the proposed project. Therefore, this alternative is considered superior because it does not create any new significant impacts beyond what is created by the proposed project, and it reduces the visual impacts caused by the proposed project. However, as stated in the Engineers Report on page 6-55, the total cost of this alternative is estimated to be $30,000,000 compared to $6,000,000 for the proposed project.

SECTION IX
SIGNIFICANT UNAVOIDABLE IMPACTS OF THE PROJECT

All potentially significant impacts of the project would be reduced to a less than significant level with the implementation of the mitigation measures identified in this EIR.

SECTION X
IRREVERSIBLE ENVIRONMENTAL CHANGES AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The project would not result in significant environmental changes, since the project would not permanently change the land use of any site. The only irreversible changes associated with the project are the construction of the bypass channel and the use of non-renewable resources during the construction phase.

SECTION XI
GROWTH INDUCING IMPACTS OF THE PROJECT

For the purposes of this project, a growth inducing impact is considered significant if the project would:

- cumulatively exceed official regional or local population projections;
- directly induce substantial growth or concentration of population. The determination of significance shall consider the following factors: the degree to which the project would cause growth (i.e., new housing or employment generators) or accelerate development in an undeveloped area that exceeds planned levels in local land use plans;
- indirectly induce substantial growth or concentration of population (i.e., introduction of an unplanned infrastructure project or expansion of a critical public facility (road or sewer line) necessitated by new development, either of which could result in the potential for new development not accounted for in local general plans).

Since the project does not propose any new development, expansion of existing development, or increased capacity or infrastructure, nor has the potential to serve new development, it would not have significant growth inducing impacts.

SECTION XII
SCOPING AND COORDINATION WITH AGENCIES AND THE PUBLIC

On July 19, 2001 the Santa Clara Valley Water District issued a Notice of Preparation (NOP) of this EIR to various Federal, State, regional and local governmental agencies, as required by CEQA. Included in the NOP was a description of the proposed project and the issues to be addressed in this EIR. These materials are reproduced in Appendix B of this EIR.

In addition, the District arranged a public workshop on October 23, 2001 and a public hearing on November 20, 2001. Both of these events occurred during the public review period of the Draft EIR. The workshop was held as an informational meeting, enabling the public and interested groups to discuss the project with the District, ask questions, and gain a better understanding of the project. The public hearing was held to allow the public and interested groups who had not formally commented on the document to voice their opinions for the public record. Notices of these public meetings were mailed to nearby residents and interested community groups. Noticing information was also posted on the District's web site.

During the circulation of the NOP, a number of comments were received. All verbal and written comments received have been reproduced in Appendix E of this EIR. The issues raised in the comments and letters are addressed within this EIR.

SECTION XIII
GLOSSARY

100-Year Flood	Synonymous with the one-percent flood; a flood magnitude that has a one percent chance of being equaled or exceeded in any one year.
Backwater Pressure	A channel constriction in a reach of creek or river will cause high flows to back up upstream of the constriction. The resultant rise in water surface elevations can not only threaten to overtop banks or floodwalls along the creek, but may also rise above the soffits at bridge crossings, resulting in pressurized flow under the bridges and uplift forces on the bridge structure.
Best Management Practice (BMP)	An activity, procedure, or other standard management and work practice that provides the most effective means of preventing or reducing impacts associated with a proposed project or land use.
Brackish Water	Water that is a mixture of freshwater and saltwater, with salinity less than seawater.
Bridge Pressurization	This occurs when the water surface in a stream channel rises so that it makes contact with the underside of a bridge crossing. In such circumstances, the flow characteristics are more reflective of closed pipe (or pressurized) flow than open channel flow, which has a free water surface.
Bypass Channel	A flood control facility through which a portion of the stream's flow is diverted from one point and reintroduced further downstream or into another waterway.
Confluence	A meeting of two or more streams or rivers.
Culvert	Any covered structure not classified as a bridge which conveys a waterway under a road or other paved area.
FEMA	Federal Emergency Management Agency. Has authority over federal flood insurance program and publishes the 100-year flood map.
Flood Capacity	The capacity of a channel to carry calculated flood flows. Capacity is dependant on cross-sectional area and frictional components (e.g. channel vegetation).
Floodwall	A solid structural wall installed along a creek or riverbank to contain floodwaters that rise above the natural bank level.

Freeboard	The height between the projected water surface elevation during the one percent (100-year) flood flow and the top of the bank/levee. The purpose of freeboard is to create a safety or buffer zone to ensure that flood flows are conveyed without blockage, damage to structures, and/or flooding of adjacent areas and to account for any underestimation of the base flood due to the uncertainties of the hydraulic analysis. FEMA requires that four feet of freeboard be provided at the bridge crossings and 100 feet upstream and downstream of these crossings, and requires three feet of freeboard at all other locations with levees.
Habitat	The specific area or environment in which a particular type of plant or animal lives. To be complete, an organism's habitat must provide all of the basic requirements of life for that organism.
Hardscape	Concrete, rock, gabions, or other permanent, hard surface channel treatment.
Headwall	A solid structural wall installed along bridge crossings to contain floodwaters that rise above the level of the bridge roadway.
Levee	An embankment constructed to prevent a river or stream from flooding adjacent lands.
NGVD	National Geodetic Vertical Datum. The NGVD forms the basis for surveys in which the curvature of the earth is considered. The level of ground surface or floodwaters listed in the text are elevations above or below mean sea level, which is calculated based on the NGVD. The notation "NGVD" means about the same thing as the traditional reference to "sea level".
Riparian	Located along the edge of a channel, generally on the floodplain. Characterized by access to and influence of the channel, but not in it.
Riparian Corridors	Refers to a biological zone dominated by riparian vegetation immediately next to a channel.
Riparian Vegetation (or Habitat)	A collective term for plants that are associated with streams or rivers.
Ruderal	Vegetation containing mostly introduced, weedy herbaceous species. Common in disturbed areas, along roadsides or vacant lots.

Sediment	Particles derived from rocks or biological materials that have been transported by a fluid, or solid material suspended in or settled from water.
Sediment Basin	A depression formed by the construction of a barrier or dam built at a suitable location to retain rock, gravel, silt or other material.
Sediment Removal	The act of removing sediment deposited within a stream. Typically, sediment is removed when it reduces capacity.
Sensitive Habitat	A catchall phrase for habitats which either support sensitive species or are designated as a sensitive natural community in local or regional plans, policies, regulations or by the California Department of Fish and Game or the US Fish and Wildlife Service.
Sensitive Species	A catchall phrase for listed (i.e. on a state or federal endangered species list) species, species proposed for listing and species of special concern.
Special Status Species	A species that is formally designated as endangered or threatened under the state or federal ESA.

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SECTION XV
REFERENCES

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APPENDIX A

MATADERO CREEK
FLOOD CONTROL PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT
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February 9, 2000 (revised October 10, 2002)

Project Number 1518-01

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ENVIRONMENTAL SETTING

PROJECT DESCRIPTION

The Santa Clara Valley Water District (SCVWD) proposes to implement further flood protection measures along Matadero Creek between El Camino Real and the Palo Alto Flood Basin (Figure 1). The flood control measures for the reach of Matadero Creek downstream of Highway 101 are designed to decrease backwater pressure by improving conveyance of storm flows to the Palo Alto Flood Basin.

The design includes the construction of a sediment basin immediately east of East Bayshore Road, which would convey flood flows into a bypass channel. An 80-foot wide bypass channel is proposed immediately adjacent to the City of Palo Alto's Municipal Service Center (MSC), in a location that would avoid excessive removal of riparian vegetation. The sediment basin and bypass channel will be concrete lined and accessible for sediment removal. This flood protection work will be referred to as the downstream improvements.

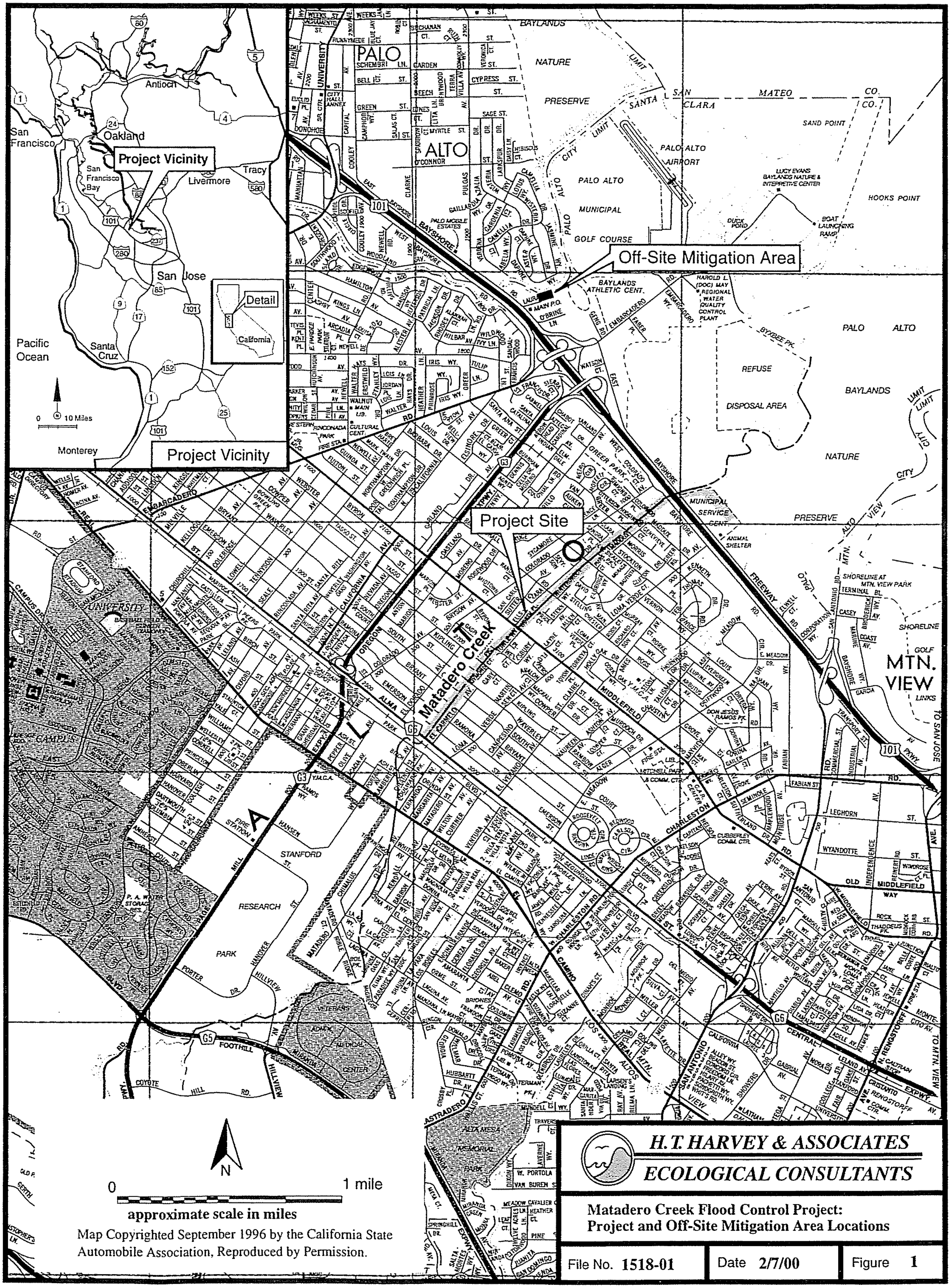
Although the majority of the projects impacts to biological resources will occur from the downstream improvements, flood protection improvements are also planned for Matadero Creek upstream of Highway 101. This stretch of Matadero Creek between El Camino Real and Highway 101 is currently a concrete lined, trapezoidal-shaped channel with concrete floodwalls located at top of bank. Flood protection measures upstream of Highway 101 include the raising the Louis Road Bridge, the widening a 120-foot section of the Matadero Creek channel by creating a U-frame, concrete lined channel and raising some of the existing floodwalls (Figure 2). This flood protection work will be referred to as the upstream improvements.

GENERAL PROJECT AREA DESCRIPTION

The impacts to biotic resources are limited to the proposed downstream improvements. These proposed improvements are located on the southwest side of Matadero Creek, downstream of Highway 101. This stretch of Matadero Creek is bordered by East Bayshore Drive on the west and the MSC to the south (Figure 3).

The project site encompasses an area surrounding a portion of the lower reach of Matadero Creek, which flows northeast into the Palo Alto Flood Basin (Figure 3). The Matadero Creek floodplain is essentially flat and without substantial topographic relief. Elevations within the study area vary from less than 0.0 feet National Geodetic Vertical Datum (NGVD) along Matadero Creek to around 6.0 feet NGVD along the near edge of the MSC.

The project site is underlain by Alviso Association soils (Soil Conservation Service, SCS 1968). This soil association consists of very poorly drained, fine-textured soils that occupy tidal flat areas along San Francisco Bay (SCS 1968). The Palo Alto area has a mean maximum temperature of 69.3 degrees Fahrenheit (°F) and a mean minimum temperature of



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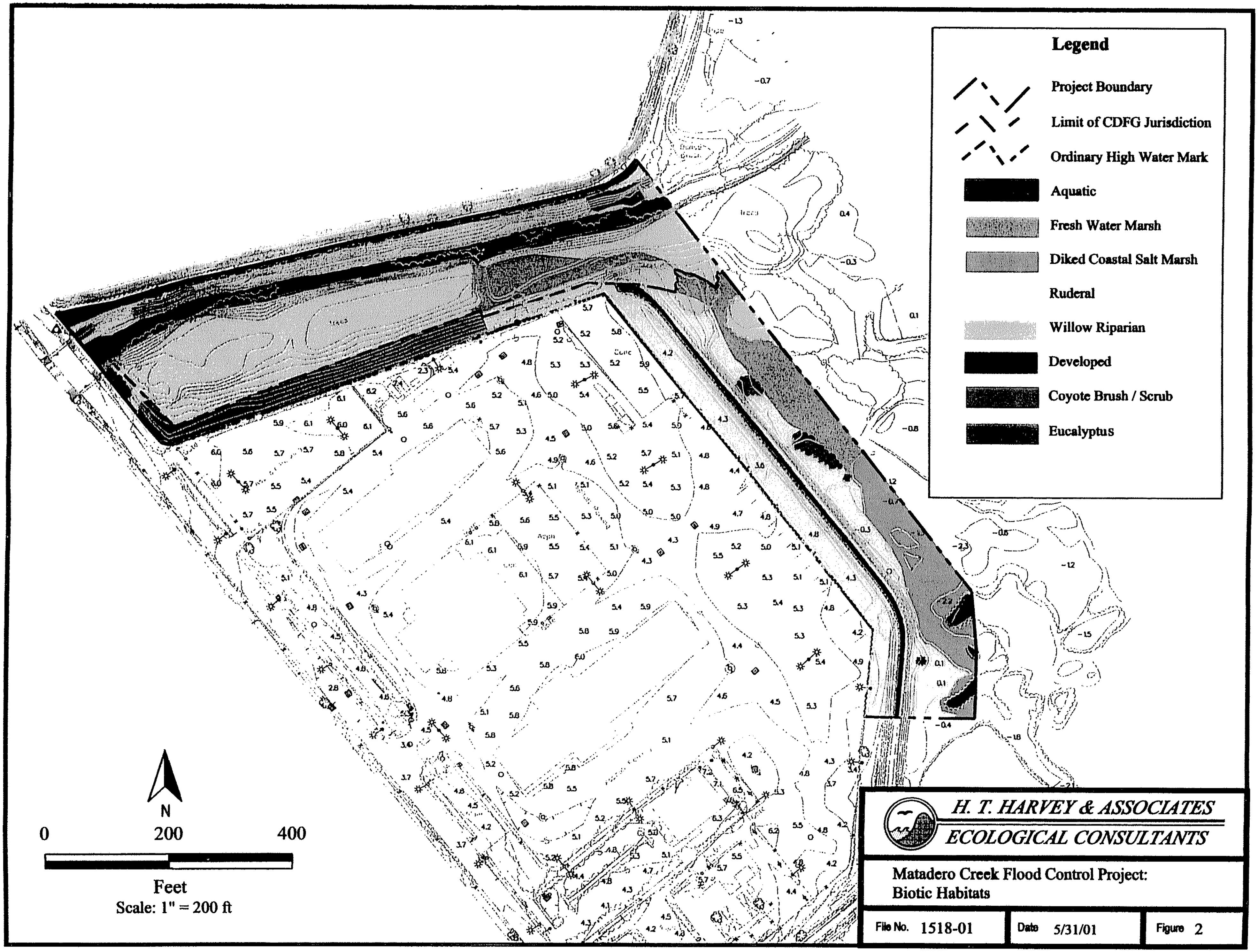
Matadero Creek Flood Control Project:
Project and Off-Site Mitigation Area Locations

File No. **1518-01**	Date **2/7/00**	Figure **1**



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Matadero Creek Flood Control Project: Biotic Habitats

File No. 1518-01	Date 5/31/01	Figure 2

46.6°F. Temperatures in the summer months may reach into the 90°F range. The mean annual precipitation in the project vicinity is approximately 15.4 inches (Western Regional Climate Center).

BIOTIC SURVEYS

Reconnaissance-level field surveys to identify and map biotic habitats, evaluate botanical and wildlife resources, and assess the suitability of the study area to support special-status plant and animal species were conducted in November and January 1999. Survey personnel included a wildlife biologist (Dr. Steve Rottenborn), a restoration ecologist (John Bourgeois, M.S.) and a plant ecologist (Brian Cleary M.S.). Lists of the vascular plant species observed and vertebrate species either expected to occur or observed on the project site during field surveys are provided in Appendices A and B, respectively.

BIOTIC HABITATS

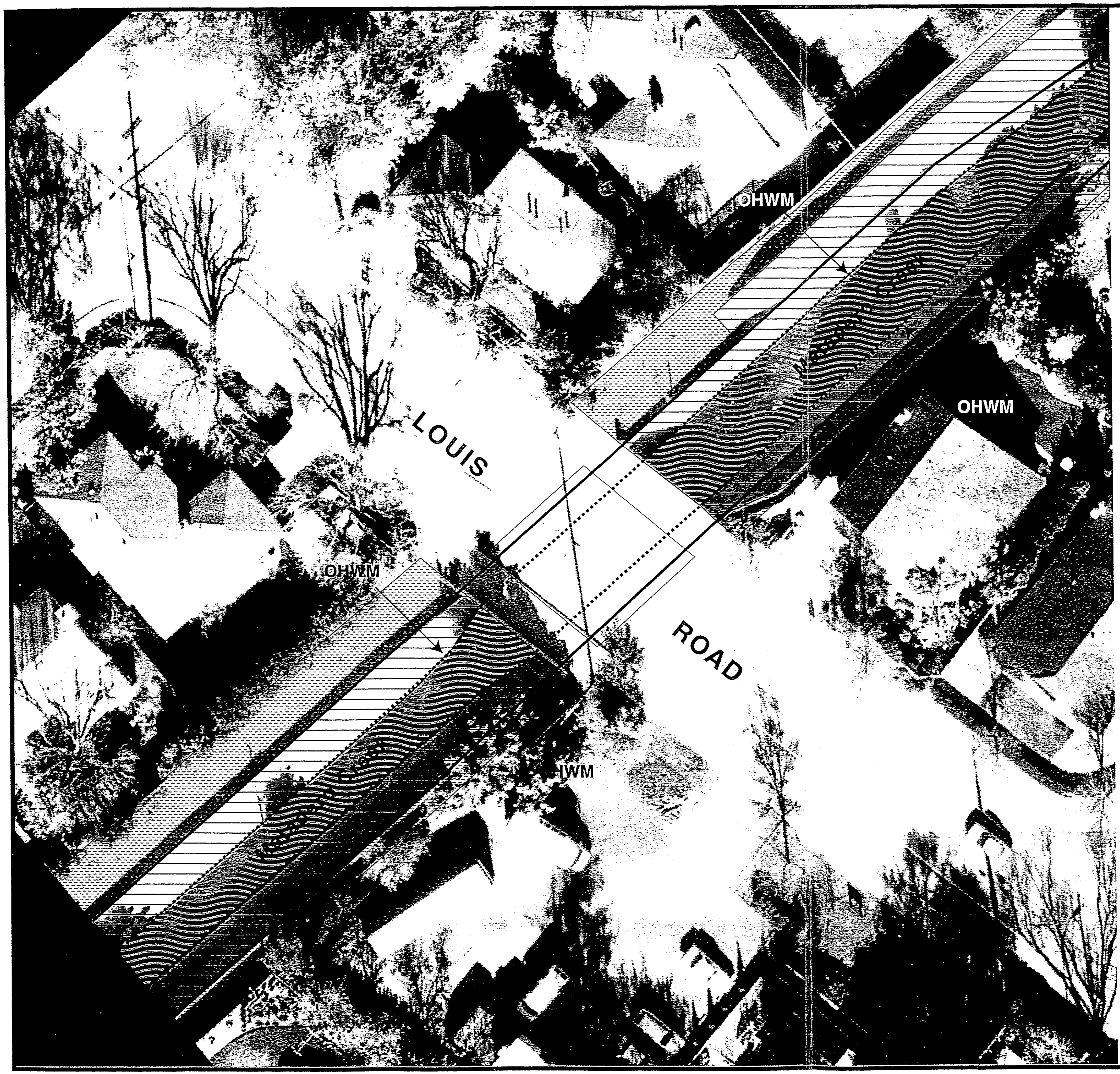
Where appropriate, the communities have been named according to Holland's system of classification (1986) as modified by Sawyer and Keeler-Wolf (1995). Habitats were mapped with the aid of blueprint aerial photographs (scale 1 inch = 50 feet). Table 1 summarizes the size of these habitats:

Table 1. Acreage summary of habitats found at the Matadero Creek Flood Control project site, Palo Alto, California.

Habitat Type	Acres	Percent of Total
Diked Coastal Salt Marsh	0.60	7
Freshwater Marsh	0.48	6
Willow Riparian	3.18	39
Coyote Brush Scrub	0.22	3
Eucalyptus	0.52	6
Ruderal	2.10	26
Aquatic	0.60	7
Developed	0.40	5
TOTAL=	8.10	100

Diked Coastal Salt Marsh

Vegetation. Approximately 0.60 acres of diked coastal salt marsh habitat occurs in the eastern part of the project site downstream of U. S. Highway 101 (Figure 3). This habitat occurs within the Palo Alto Flood Basin (a highly managed floodwater retention basin) directly south of Matadero Creek. Saltwater from San Francisco Bay is conveyed into the flood basin through a series of controlled gates only during summer months.



Legend

- ▬ Limit of CDFG Jurisdiction
- ┈ Ordinary High Water Mark
- ▤ Aquatic (concrete-lined Channel)
- ▨ Ruderal
- ▭ Developed

N

0 50 100

approximate scale in feet

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Matadero Creek Flood Control Project: Biotic Habitats

File No. **1518-01**	Date **2/2/2000**	Figure **3**

This habitat type is dominated by species that are characteristic of tidal salt marshes including pickleweed (*Salicornia virginica*) and salt grass (*Distichlis spicata*). Species composition andcover were variable ranging from dense, pure stands of pickleweed to generally open, low stands of pickleweed mixed with saltgrass and other disturbance-oriented species including sweet fennel (*Foeniculum vulgare*), beet (*Beta vulgaris*), fat hen (*Atriplex* sp.), and aster (*Aster* sp.).

Wildlife. Wildlife species associated with the diked coastal salt marsh habitat on the project site are generally species associated with structurally simple habitats, such as ruderal habitats, although some saltmarsh-associated species are present. Reptiles such as the western fence lizard (*Sceloporus occidentalis*), racer (*Coluber constrictor*), and gopher snake (*Pituophis melanoleucus*) are expected to occur in this habitat. Few birds are expected to nest in this habitat, although the Savannah Sparrow (*Passerculus sandwichensis*) and Western Meadowlark (*Sturnella neglecta*) may nest here. A number of species of raptors, including the White-tailed Kite (*Elanus caeruleus*), Northern Harrier (*Circus cyaneus*), Red-tailed Hawk (*Buteo jamaicensis*), American Kestrel (*Falco sparverius*), and Barn Owl (*Tyto alba*) forage in this habitat during the breeding season, and Short-eared Owls (*Asio flammeus*) forage here during the nonbreeding season. The Loggerhead Shrike (*Lanius ludovicianus*) also forages in this habitat. Mammals expected to be present include the salt marsh harvest mouse (*Reithrodontomys raviventris*), California vole (*Microtus californicus*), house mouse (*Mus musculus*), and red fox (*Vulpes vulpes*).

Freshwater Marsh

Vegetation. Approximately 0.48 acres of freshwater marsh habitat occurs in the eastern part of the project site located downstream of U. S. Highway 101 (Figure 3). This habitat occurs at the northwest edge of the Palo Alto Flood Basin directly south of Matadero Creek. A dense cover of broad-leaved cattail (*Typha latifolia*) dominates the freshwater marsh habitat with ruderal species including tall wheatgrass (*Elytrigia pontica* ssp. *pontica*) and poison hemlock (*Conium maculatum*) occupying the outer, slightly elevated habitat margins.

Wildlife. Western toads (*Bufo boreas*) and Pacific treefrogs (*Hyla regilla*) may breed in the freshwater marsh habitat on the site. Reptiles occurring here include the racer and common garter snake (*Thamnophis sirtalis*). Marsh-nesting bird species such as the Song Sparrow (*Melospiza melodia*), Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*), Marsh Wren (*Cistothorus palustris*), and Red-winged Blackbird (*Agelaius phoeniceus*) nest in this habitat, and species such as the Sora (*Porzana carolina*), Virginia Rail (*Rallus limicola*), and Lincoln's Sparrow (*Melospiza lincolnii*) may use this habitat for foraging and cover during the nonbreeding season. Mammals foraging in this habitat include the California vole, house mouse, raccoon (*Procyon lotor*), and opossum (*Didelphis virginiana*).

Willow Riparian

Vegetation. Approximately 3.18 acres of willow riparian habitat occurs in the eastern region of the project site located downstream of U. S. Highway 101 (Figure 3). This habitat occurs along the opposing banks of Matadero Creek and is well developed along the south bank. Riparian habitat extends from the east side of the East Bayshore Road Bridge crossing extending south and east along Matadero Creek and into the Palo Alto Flood Basin. A narrow band of willow riparian habitat that is less developed occurs along the north bank of this section of Matadero Creek. The riparian habitat consists primarily of a semi-closed and moderately well developed stand of mature, sub-adult trees dominated by red willow (*Salix laevigata*) that grow to a maximum height of approximately 25-35 feet. Several Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), California buckeye (*Aesculus californica*), and Northern California black walnut trees (*Juglans californica* var. *hindsii*) occur as associate species within this willow dominated riparian habitat. The Northern California black walnut is considered by the California Native Plant Society to be a special-status tree species with only three native stands known to occur (Skinner and Pavlik 1994), however, the tree is now widely naturalized in California. Associate shrub species identified within the riparian understory include California blackberry (*Rubus ursinus*), and blue elderberry (*Sambucus mexicana*). A groundcover layer of herbaceous freshwater emergent species including willow dock (*Rumex salicifolius*) and watercress (*Rorripa nasturtium-aquaticum*) was observed beneath the willow riparian canopy directly adjacent to the northeastern corner of the MSC. Additional species identified within the riparian habitat understory include California mugwort (*Artemisia douglasiana*), common yarrow (*Achillea milifolium*), and greater periwinkle (*Vinca major*). A somewhat continuous and dominant patch of the non-native invasive giant reed (*Arundo donax*) was observed directly adjacent to the east side of East Bayshore Road on the south side of Matadero Creek.

Wildlife. The wildlife habitat value of the willow riparian vegetation along lower Matadero Creek immediately downstream from Highway 101 is limited somewhat by its proximity to Highway 101 and the MSC, its young age, and the lack of more mature riparian vegetation nearby. Nevertheless, it represents fairly high-quality wildlife habitat due to the dense nature of the vegetation, the presence of a well-developed understory, and its bayside location. Amphibians and reptiles expected to occur here include the Pacific treefrog, western fence lizard, southern alligator lizard (*Gerrhonotus multicarinatus*), racer, and gopher snake. The diversity of nesting birds is limited somewhat by the lack of very tall, large-diameter trees, although a number of bird species breed here. These include the White-tailed Kite, Mourning Dove (*Zenaida macroura*), Anna's Hummingbird (*Calypte anna*), Bushtit (*Psaltriparus minimus*), Bewick's Wren (*Thryomanes bewickii*), California Towhee (*Pipilo crissalis*), Song Sparrow, Lesser Goldfinch (*Carduelis psaltria*), American Goldfinch (*Carduelis tristis*), and others. Many species of migrants, including the Allen's Hummingbird (*Selasphorus sasin*), Pacific-slope Flycatcher (*Empidonax difficilis*), Warbling Vireo (*Vireo gilvus*), Swainson's Thrush (*Catharus ustulatus*), Black-headed Grosbeak (*Pheucticus melanoleucus*), House Wren (*Troglodytes aedon*), Willow Flycatcher (*Empidonax traillii*), Western Tanager (*Piranga ludoviciana*), Orange-crowned Warbler (*Vermivora celata*), Wilson's Warbler (*Wilsonia pusilla*), and Yellow Warbler (*Dendroica petechia*) occur here during migration. During winter, large numbers of Lincoln's, White-crowned (*Zonotrichia leucophrys*), Golden-crowned (*Zonotrichia atricapilla*), and Fox (*Passerella iliaca*) sparrows, as well as Ruby-crowned Kinglets (*Regulus calendula*), Hermit Thrushes (*Catharus guttatus*), and Yellow-rumped Warblers (*Dendroica coronata*), are present in this riparian habitat. Mammals expected to occur here include the California vole, Botta's pocket gopher, deer mouse (*Peromyscus maniculatus*), house mouse, opossum, raccoon, and striped skunk (*Mephitis mephitis*).

Coyote Brush Scrub

Vegetation. Approximately 0.22 acres of coyote brush (*Baccharis pilularis*) scrub habitat occurs in the eastern region of the project site located downstream of U. S. Highway 101 (Figure 3). This habitat occurs south of Matadero Creek. The vegetation is comprised of monospecific patches of coyote brush. On the project site, coyote brush scrub occupies the slightly elevated and disturbed ecotonal margins between coastal salt marsh and freshwater marsh habitats and is often closely associated with upland ruderal habitat.

Wildlife. Many of the wildlife species associated with the riparian habitats occasionally forage or take cover in the coyote brush scrub on the project site, although most species make only limited use of this habitat. Reptile species occurring here somewhat frequently include the western fence lizard, gopher snake, and racer. The California Towhee and Lesser Goldfinch may nest in this habitat, and other species, such as the Bushtit, White-crowned Sparrow, Golden-crowned Sparrow, and others are expected to forage here. Mammals expected to occur here include the California vole, Botta's pocket gopher, deer mouse, house mouse, opossum, raccoon, and striped skunk.

Eucalyptus

Vegetation. Approximately 0.52 acres of eucalyptus habitat occurs in the eastern region of the project site located downstream of U. S. Highway 101 (Figure 3). This habitat occurs south of Matadero Creek, and is dominated by approximately 50 mature blue gum (*Euclayptus globulus*) and silver-leaved (*Eucalyptus pulverulenta*) eucalyptus trees growing up to 50 feet in height. The trees are planted in several rows approximately 20 feet wide along the northwestern edge of the MSC directly adjacent to the east side of East Bayshore Road. This eucalyptus habitat forms a closed overstory canopy that overlaps the willow riparian canopy along the south side of Matadero Creek.

Wildlife. The eucalyptus trees along the edge of the MSC are used as foraging habitat by most of the bird species expected to occur in the adjacent riparian habitat. Although most of these species are expected to be less common in the eucalyptus trees than in the native riparian habitat, a few, such as the Anna's Hummingbird and Yellow-rumped Warbler, are common in the eucalyptus. Bird and mammal species associated with low, dense vegetation are expected to be rare in or absent from the eucalyptus trees.

Ruderal

Vegetation. Approximately 2.10 acres of ruderal, or disturbed habitat occurs in the eastern region of the project site located downstream of U. S. Highway 101 (Figure 3). The majority of ruderal habitat occurs along the east and west sections of the gravel maintenance road situated south of Matadero Creek, and directly adjacent to the eastern section of the MSC. Small patches of ruderal habitat also occur along the north bank of Matadero Creek.

Approximately 0.03 acres of ruderal habitat occurs in the western region of the project site located upstream of U. S. Highway 101 adjacent to the east and west sides of the Louis Road/Matadero Creek bridge crossing (Figure 2). Ruderal habitat includes the dirt maintenance road located on the north side of the cement-lined Matadero Creek channel both upstream and downstream of the Louis Road Bridge crossing.

Ruderal habitat located in both the east and west regions of the project site is dominated by a mixture of invasive non-native annual grasses and forbs that are common to the Santa Clara Valley. Plant species include tall wheatgrass, Mediterranean barley (*Hordeum hystrix*), smilo grass (*Piptatherum miliaceum*), sweet fennel (*Foeniculum vulgare*), yellow star-thistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), bristly ox-tongue (*Picris echioides*), wild radish (*Raphanus sativus*), and cheeseweed (*Malva parviflora*).

Wildlife. Wildlife species expected to occur in the ruderal habitat on the project site are generally similar to those present in the coyote brush scrub, consisting primarily of species relying on adjacent habitats for most of their foraging and cover.

Aquatic

Vegetation. Approximately 0.60 acres of aquatic habitat occurs in the eastern region of the project site located downstream of U. S. Highway 101 (Figure 3). This habitat occurs within Matadero Creek and also south of the creek in the Palo Alto Flood Basin. The deep-water aquatic habitat in Matadero Creek supports small and intermittent patches of freshwater emergent vegetation along the banks of the creek. Freshwater emergent species include watercress and willow dock. Small intermittent patches of pickleweed occur within aquatic habitat south of Matadero Creek in the Palo Alto Flood Basin.

Approximately 0.06 acres of aquatic habitat occurs in the western region of the project site located upstream of Interstate Highway 101 within the cement-lined section of Matadero Creek on the east and west side of the Louis Road bridge crossing (Figure 2). Small patches of freshwater emergent vegetation including watercress and willow dock was identified within aquatic habitat along both the north and south side of the creek on the east and west sides of the Louis Road bridge crossing.

Wildlife. Matadero Creek itself contains several species of fish, possibly including the steelhead rainbow trout (*Oncorhynchus mykiss*). Pied-billed Grebes (*Podilymbus podiceps*), American Coots (*Fulica Americana*), and Common Moorhens (*Gallinula chloropus*) nest in emergent vegetation, while Mallards (*Anas platyrhynchos*), Gadwalls (*Anas strepera*), Black-crowned Night-Herons (*Nycticorax nycticorax*), and Double-crested Cormorants (*Phalacrocorax auritus*) forage in the creek. The aquatic habitats in the pond and adjacent marsh on the southeast side of the MSC are used by nesting waterfowl and foraging shorebirds; this area is an important foraging area for numerous species of waterfowl, shorebirds, gulls, terns, and egrets year-round.

Developed

Vegetation. Approximately 0.40 acres of developed habitat occurs in the eastern region of the project site located downstream of U. S. Highway 101 (Figure 3). This habitat occurs along the north side of Matadero Creek and to the south of the creek east of the MSC fenceline. Developed habitat includes the two gravel maintenance roads. One road parallels the north side of Matedero Creek, and the second road located south of the creek parallels the east side of the MSC. The road surfaces are essentially devoid of vegetation.

Approximately 0.04 acres of developed habitat occurs in the western region of the project site located upstream of U. S. Highway 101 (Figure 2). Developed habitat in this section of the project site includes that portion of the cement-lined bed and banks of Matadero Creek on the east and west side of the Louis Road Bridge crossing. This habitat is essentially devoid of vegetation.

Wildlife. Few wildlife species are expected to occur in the developed habitats. Most of the wildlife species expected to occur in the developed habitat on the project site are generally similar to those present in the ruderal/*Baccharis* scrub habitats, consisting primarily of species relying on adjacent habitats for most of their foraging and cover. In addition, the Killdeer (*Charadrius vociferus*) may nest on the gravel road adjacent to the MSC.

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES

Information concerning threatened, endangered, or other special-status species that may occur in the area was collected from several sources and reviewed by H. T. Harvey & Associates biologists. The sources consulted included the California Department of Fish and Game's (CDFG) Natural Diversity Data Base (CNDDB 2000), California Wildlife Habitat Relationships species notes (CDFG 1988, 1990a, 1990b), and miscellaneous information available through the U.S. Fish and Wildlife Service (USFWS), CDFG, and technical publications. The California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik 1994) and *The Jepson Manual* (Hickman 1993) supplied information regarding the distribution and habitats of vascular plants in the vicinity.

A search of published accounts of these species was conducted for the USGS Palo Alto and Mountain View quadrangles, in which the project site occurs, and for surrounding quadrangles, including Cupertino, San Jose West, Milpitas, Mindego Hill, La Honda, Woodside, San Mateo, Redwood Point, Newark, and Niles using CNDDB Rarefind reports (2000). All species listed as occurring in Santa Clara and San Mateo counties and present on CNPS Lists 1A, 1B, 2, 3 or 4 were reviewed.

Special-Status Plant Species

Reconnaissance-level field surveys were conducted on 26 January 2000 for habitats capable of supporting special-status plants on site. The survey method involved hiking the entire project area in a pattern that allowed all portions of the project site to be generally observed.

When assessing the site's potential habitat suitability for special-status plant species, H. T. several factors are generally taken under consideration, including: 1) the proximity and date of known occurrences, 2) the presence and ecological condition of habitats on-site, 3) past and current land use practices, 4) the existence of known associate species, and 4) direct observation of plants as a result of optimally-timed, species-specific surveys. The legal status and likelihood of special-status plant species occurrence on the project site are given in Table 2.

Several special-status plant species are known to occur in the region of the project site. These species, however, occur in habitats that are not currently present on site such as: vernal pools, valley and foothill grassland, coastal prairie, coastal dunes, coastal scrub, chaparral, cismontane woodland, northcoast coniferous forest, closed-cone coniferous forest, lower montane coniferous forest, and broadleaf upland forest.

Five special-status plant species were identified as having the greatest potential to occur on site. These species include: sea blite (*Suaeda californica*, federally-listed endangered), marsh gumplant (*Grindelia stricta* var. *angustifolia*, CNPS 4), Congdon's tarplant (*Hemizonia parryi* ssp. *condonii*, CNPS 1B), and hairless popcorn flower (*Plagiobothrys glaber*, CNPS 1B. These four plants and their suitable habitat were the primary target species searched for during the reconnaissance-level survey and are described below in detail.

Federal or State Endangered or Threatened Species, or Proposed for Federal or State Status

Sea blite (*Suaeda californica*). Federal listing status: Endangered; State listing status: None; CNPS List 1B. Sea blite is a slightly woody evergreen shrub found in coastal salt marshes. The blooming period ranges from July to October. The only known extant population of sea blite occurs at Morro Bay. Previously, it was prevalent around San Francisco Bay. The only recorded occurrence of this species in Santa Clara County was reported from the Palo Alto Yacht harbor in 1971 (Rarefind 2000). This species is considered by CNPS (1994) to be extirpated from the San Francisco Bay area. However, suitable habitat is present on the project site; surveys are warranted.

State Protected or CNPS Lists

Marsh gumplant (*Grindelia stricta* var. *angustifolia*). Federal listing status: None; State listing status: None; CNPS List 4. Marsh gumplant occurs in salt marshes bordering San Francisco, San Pablo and Suisun Bays. This shrubby species often grows on levee slopes, next to tidal sloughs and on slightly elevated ground within marsh plains.

Table 2. Special-status plant and animal species, their status, and potential occurrence on the Matadero Creek Flood Control project site, Palo Alto, California.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Federal or State Endangered Species			
Sea blite (*Suaeda californica*)	FE, CNPS 1B	Coastal salt marshes and swamps	Populations have historically been found in the vicinity of the project site. Suitable habitat is present on site. Surveys are warranted.
Sacramento River Winter-run Chinook salmon (*Oncorhynchus tshawytscha*)	FE, SE	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	No winter-run chinook spawn in South S.F. Bay-area streams, and no chinook are expected to spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. Presumed absent.
Sacramento River Spring-run Chinook salmon (*Oncorhynchus tshawytscha*)	FT	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	No spring-run chinook spawn in South S.F. Bay-area streams, and no chinook are expected to spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. Presumed absent.
San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)	FE, SE	Wetlands, especially those dominated by herbaceous wetland vegetation, on the San Francisco Peninsula.	Site is outside the range of this subspecies; presumed absent.
American Peregrine Falcon (*Falco peregrinus anatum*)	SE, SP	Nests on cliffs or very high bridges and buildings, forages in a variety of habitats.	Rare to occasional forager on site; no suitable breeding habitat on site.
California Clapper Rail (*Rallus longirostris obsoletus)*	FE, SE, SP	Salt marsh habitat dominated by pickleweed and cordgrass.	No suitable habitat on or near site; presumed absent.
California Least Tern (*Sterna antillarum brownii*)	FE, SE	Nests primarily along the coast on bare or sparsely vegetated, flat substrates.	The pond just south of the MSC could provide suitable foraging habitat, although there are no known records of Least Terns foraging in this pond, and this pond will not be impacted directly by the project. No nesting habitat is present on or near the site.
Willow Flycatcher (*Empidonax traillii*)	FE (*extimus*) SE (*brewsteri*)	Breeds locally in riparian habitats in mountains and southern deserts.	Uncommon migrant; those occurring on site are probably not of the listed races.
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)	FE, SE	Salt marsh habitat dominated by pickleweed.	Potential habitat is present on the portions of the site having pickleweed at the edges of the Palo Alto flood control basin. May be present in these areas.
Federal or State Threatened or Rare Species			
Steelhead Rainbow Trout (Oncorhynchus mykiss)	FT (Central Calif. Coast ESU)	An anadromous form of rainbow trout that migrates upstream from the Pacific or the S. F. Bay to spawn. Prefers streams with dense canopy.	Does not spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. However, it is possible that post-breeding adults or juveniles from other South Bay streams could forage in lower Matadero Creek.
California Red-legged Frog (*Rana aurora draytonii*)	FT, SP, CSSC	Streams, freshwater pools, and ponds with overhanging vegetation.	No known occurrences along lower Matadero Creek or elsewhere in project vicinity, and likely absent from site. Although it is possible that an individual could be washed to the project site from breeding populations far upstream, such an event is expected to occur very rarely (if at all), and no red-legged frog dispersing to the project site is expected to linger on-site.
California Black Rail (*Laterallus jamaicensis coturniculus*)	ST	Breeds in a variety of wetland types; in San Francisco Bay area, nests in pickleweed marshes.	Marginal habitat present on the portions of the site dominated by diked salt-marsh habitat at the edges of the Palo Alto flood control basin, although this species has not been recorded in the flood control basin or elsewhere in the immediate project vicinity. No confirmed breeding records for Santa Clara County. Presumed absent.

Table 2. Special-status plant and animal species, their status, and potential occurrence on the Matadero Creek Flood Control project site, Palo Alto, California.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	FT, CSSC	Nests on sandy beaches on marine and estuarine shores.	The pond just south of the MSC could provide marginal foraging habitat, although there are no known records of this species foraging in this pond, and this pond will not be impacted directly by the project. No nesting habitat is present on or near the site.
Federal or State Candidate Species			
Fall-run Chinook salmon (*Oncorhynchus tshawytscha*)	FC	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	Does not spawn on Matadero Creek due to very long reaches of concrete-lined channel within and just upstream from the project site. However, it is possible that juveniles from other South Bay streams could forage in lower Matadero Creek.
California Tiger Salamander (*Ambystoma californiense*)	FC, CSSC	Vernal or temporary pools in annual grasslands, or open stages of woodlands.	No suitable habitat on site; presumed absent.
California Species of Special Concern			
Foothill Yellow-legged Frog (*Rana boylii*)	CSSC	Rocky streams in a variety of habitats. Found in coast ranges.	No suitable habitat on site; presumed absent.
Western Pond Turtle (*Clemmys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats.	Although it is possible that an individual could disperse to the project site from breeding populations far upstream, such an event is expected to occur rarely, and any pond turtles that might disperse to the project site are not expected to linger or to breed successfully on-site.
American White Pelican (*Pelecanus erythrorhynchos*)	CSSC	Forages on fish found in freshwater lakes and rivers, nests on islands in lakes.	The pond just south of the MSC provides suitable foraging habitat, although this pond will not be impacted directly by the project. Does not nest in S.F. Bay area.
Double-crested Cormorant (*Phalacrocorax auritus*)	CSSC	Colonial nester on coastal cliffs, offshore islands, electrical transmission towers, and along interior lake margins. Feeds on fish.	Forages in Matadero Creek and in the pond just south of the MSC, although no nesting habitat is present on or immediately adjacent to the site.
Northern Harrier (*Circus cyaneus*)	CSSC	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.	Breeds and forages in the Palo Alto flood control basin. Expected to forage on-site occasionally, and could possibly breed near (but not in) impact areas.
Sharp-shinned Hawk (*Accipiter striatus*)	CSSC	Nests in dense woodlands, forages in many habitats in winter and migration.	Occurs on-site only as a migrant and winter visitor.
Cooper's Hawk (*Accipiter cooperi*)	CSSC	Nests in woodlands, forages in many habitats in winter and migration.	Although expected to occur primarily as a migrant and winter visitor, potential breeding habitat is present in the riparian woodland on-site, and this species could possibly nest on-site.
Golden Eagle (*Aquila chrysaetos*)	CSSC	Breeds on cliffs or in large trees or structures, forages in open habitats.	Possibly a rare forager over site. Not expected to forage on-site frequently. No breeding habitat on or near site.
Merlin (*Falco columbarius*)	CSSC	Uses many habitats in winter and migration.	Occasional forager during migration and winter.
Prairie Falcon (*Falco mexicanus*)	CSSC	Breeds on cliffs or in large trees or structures, forages in open habitats.	Possibly a rare forager over site. Not expected to forage on-site frequently. No breeding habitat on or near site.
Long-billed Curlew (*Numenius americanus*)	CSSC	Forages in a variety of open habitat types from marshes and mudflats to pastures and dry agricultural fields	The pond just south of the MSC provides suitable foraging habitat, although this pond will not be impacted directly by the project. Does not nest in S.F. Bay area.

Table 2. Special-status plant and animal species, their status, and potential occurrence on the Matadero Creek Flood Control project site, Palo Alto, California.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
California Gull (*Larus californicus*)	CSSC	Nests on inland lakes and in salt ponds around S. F. Bay.	The pond just south of the MSC provides suitable roosting and foraging habitat, although this pond will not be impacted directly by the project. No breeding habitat on or near site.
Burrowing Owl (*Athene cunicularia*)	CSSC	Nests and forages in flat, open habitats, such as grasslands and ruderal areas, having suitable nesting and roosting burrows.	Habitat on-site marginal, at best, for this species due to the paucity of ground squirrels and suitable open upland areas with short vegetation. Present at the nearby Palo Alto landfill, but expected to occur rarely, if at all, on-site.
Vaux's Swift (*Chaetura vauxi*)	CSSC	Breeds in north coast and montane coniferous forests; forages aerially.	Occasional migrant, foraging over site.
California Horned Lark (*Eremophila alpestris actia*)	CSSC	Short-grass prairie, annual grasslands, coastal plains, open fields.	No suitable habitat on-site; presumed absent.
Loggerhead Shrike (*Lanius ludovicianus*)	CSSC	Nests in tall shrubs and dense trees, forages in grasslands, marshes, and ruderal habitats.	Suitable nesting and foraging habitat present on-site; probably breeds on-site.
California Yellow Warbler (*Dendroica petechia brewsteri*)	CSSC	Breeds in riparian woodlands, particularly those dominated by cottonwoods and willows.	Foraging habitat and marginal breeding habitat present on-site. Breeding unlikely (no recent breeding records from site vicinity).
Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*)	CSSC	Breeds primarily in fresh and brackish marshes in tall grass, tules, willows; uses salt marshes more in winter.	Breeds on-site in riparian and tall freshwater marsh vegetation, and in dense herbaceous ruderal vegetation.
Alameda Song Sparrow (*Melospiza melodia pusillula*)	CSSC	Breeds in salt marsh, primarily in marsh gumplant and cordgrass along channels.	Song Sparrows nest in riparian and tall freshwater marsh vegetation on-site, although it is not known whether those present on-site are *pusillula*.
Tricolored Blackbird (*Agelaius tricolor*)	CSSC	Breeds near fresh water in dense emergent vegetation.	Marginal breeding habitat on-site; not known to nest in project vicinity. May occasionally forage on-site, particularly during nonbreeding season.
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves, mine tunnels, and buildings in a variety of habitats.	Possibly a rare forager over site; no roosting habitat on-site.
California Mastiff Bat (*Eumops perotis californicus*)	CSSC	Forages over many habitats, requires tall cliffs or buildings for roosting.	Possibly a rare forager over site; no roosting habitat on-site.
Pallid Bat (*Antrozous pallidus*)	CSSC	Forages mostly over open habitats, requires rocky crevices, tree cavities, mines, caves or buildings for maternity roosts. Night roosts in/on buildings, trees, rocky areas.	Possibly a rare forager over site; no roosting habitat on-site.
San Francisco Dusky-Footed Woodrat (*Neotoma fuscipes annectens*)	CSSC	Found in hardwood forests and oak riparian habitat.	No dens observed on-site. Site isolated from occupied habitat by urbanization. Presumed absent.
Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*)	CSSC	Medium high marsh 6-8 feet above sea level with abundant driftwood and pickleweed.	Potential habitat is present on the portions of the site dominated by diked salt-marsh habitat at the edges of the Palo Alto flood control basin. May be present in these areas.
State Protected Species or CNPS Species			
Marsh gumplant (*Grindelia stricta* var. *angustifolia*)	CNPS 4	Coastal salt marshes and swamps	Marsh gumplant detected on site. Detailed census and mapping surveys are warranted.
Congdon's tarplant (*Hemizonia parryi* ssp. *condonii*)	CNPS 1B	Estuary margins in marshes and swamps, vernally mesic areas of valley and foothill grasslands, and vernal pools	Populations documented near the project site in 1998. Suitable habitat is present on site. Surveys are warranted.
Hairless popcorn flower (*Plagiobothrys glaber*)	CNPS 2	Alkaline meadows and coastal salt marshes and swamps.	Populations have historically been found in the vicinity of the project site. Suitable habitat is present on site. Surveys are warranted.

Table 2. Special-status plant and animal species, their status, and potential occurrence on the Matadero Creek Flood Control project site, Palo Alto, California.

NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
White-tailed Kite (*Elanus caeruleus*)	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	Suitable nesting and foraging habitat present on-site; probably breeds on or near site.
Ringtail (*Bassariscus astutus*)	SP	Prefers riparian and heavily wooded habitats near water.	No suitable habitat on-site. Site isolated from occupied habitat by urbanization. Presumed absent.

*SPECIAL-STATUS SPECIES CODE DESIGNATIONS

FE =	Federally listed Endangered
FT =	Federally listed Threatened
SE =	State listed Endangered
SR=	State listed Rare
ST =	State listed Threatened
FC =	Federal Candidate. Sufficient biological information to support a proposal to list the species as Endangered or Threatened
CSSC =	California Species of Special Concern
SP =	State Protected Species
CNPS 1B =	Plants considered by CNPS to be rare, threatened, or endangered in California, and elsewhere
CNPS 2 =	Plants considered by CNPS to be rare, threatened, or endangered in California, but more common elsewhere
CNPS 3 =	Plants about which CNPS needs more information; a watch list
CNPS 4=	Plants of limited distribution; a watch list

During the survey effort, this species was identified in the southeastern region of the project site downstream of Interstate Highway 101. The population is located south of Matadero Creek and was observed growing along both the east and west side of the gravel maintenance road directly adjacent to the east side of the MSC compound in the southern section of the project site. Several hundred individuals of this disturbance-oriented woody perennial subshrub were documented. Numerous individuals of the plant were also observed scattered within ruderal habitat adjacent to the road, and along the fringe of coastal salt marsh habitat located in the southern section of the project site.

Congdon's tarplant (*Hemizonia parryi* ssp. *congdonii*). Federal listing status: None; State listing species: None; CNPS List 1B. Congdon's tarplant occurs in estuary margins of marshes and swamps and vernally mesic areas of valley and foothill grassland, on alkaline soils. The flowering period for this species occurs from June through November. This species has been nearly extirpated from the Bay Area; extant populations are known from Monterey, San Luis Obispo, and possibly Santa Clara counties. Historic populations were recorded north of Milpitas and along the lower end of San Francisco Bay from Sunnyvale to Alviso (Rarefind 2000). Congdon's tarplant was rediscovered in Santa Clara County in 1998 in similar habitat (Roxanne Bitman, pers. comm.). Suitable habitat is present on the project site; surveys are warranted.

Hairless popcornflower (*Plagiobothrys glaber*). Federal listing status: None; State listing status: None; CNPS List 1A. This succulent annual was historically found in coastal salt marsh habitats, particularly along the southern shore of San Francisco Bay, and in alkaline flats in valleys of Santa Clara County. The blooming period ranges from April to May. The last known population of the plant in this area was located northeast of the junction of Alvarado Boulevard and the Nimitz Freeway in Newark. This species is presumed, by CNPS, to be extinct. However, suitable habitat is present on the project site; surveys are warranted.

Special-Status Wildlife Species

Reconnaissance-level field surveys for special-status animal species were conducted by Dr. Steve Rottenborn, who hiked the entire study area on 4 November 1999 and on numerous prior occasions. Field notes from previous visits to the study area were checked. Lower Matadero Creek and the adjacent Emily Renzel wetlands and Palo Alto Flood Basin are well-covered by birders, and known records of bird species reported from the project vicinity by other birders were also reviewed.

The special-status animal species that occur in the vicinity in habitats similar to those found on the project site, as well as the legal status and likelihood of occurrence of these species on-site, are given in Table 2. Expanded descriptions are included below only for those species for which potentially suitable habitat occurs on the project site, for which specific surveys were conducted, or for which the resource agencies have expressed particular concern.

Federal or State Endangered or Threatened Species

Steelhead Rainbow Trout (*Oncorhynchus mykiss*). Federal listing status: Threatened; State listing status: Species of Special Concern. The steelhead rainbow trout is an anadromous form of rainbow trout (i.e., it migrates upstream from the ocean/bay to spawn). Young steelhead usually remain in freshwater streams one to two years before migrating to the ocean. They typically grow rapidly for one to two years in the ocean before returning to freshwater streams to spawn. Steelhead do not necessarily die after spawning as salmon do, and they may survive to spawn two or three seasons. Steelhead trout are generally found in clear, cool, perennial sections of relatively undisturbed streams. Preferred streams typically support dense canopy cover but are usually free of rooted or aquatic vegetation. Gravel substrates are the optimum spawning habitat for these trout. Steelhead usually cannot survive long in pools or streams with water temperatures above 70°F for juveniles and adults and above 58°F for developing embryos.

Steelhead are not expected to spawn in Matadero Creek due to the long reaches of unvegetated, channelized, concrete-lined channel and culverted sections of this stream immediately upstream from the site. In addition, no suitable spawning habitat is present within the heavily sedimented reaches of this stream within the project area. However, it is possible that steelhead spawning elsewhere in the south San Francisco Bay area could enter the Palo Alto Flood Basin through the gates in the northeast corner of the basin, and that adults and juveniles could occur on occasion in the lower reaches of Matadero Creek.

California Red-legged Frog (*Rana aurora draytonii*). Federal listing status: Threatened; State listing status: State Protected and Species of Special Concern. The USFWS listed the California red-legged frog as federally threatened on May 23, 1996 (61 Fed. Reg. 25813). The red-legged frog is a medium-sized frog with reddish-colored legs. This species is generally restricted to riparian habitats in California and northern Baja California. Red-legged frogs prefer deep, quiet pools (more than 3 feet deep) in creeks, rivers, or lakes below 1,000 meters in elevation (about 3,000 feet). Habitat requirements include fresh emergent or dense riparian vegetation, especially willows adjacent to shorelines. Red-legged frogs can survive in seasonal bodies of water that are dry for short periods if there is a permanent water body or dense vegetation stands nearby. The adults are normally active at night and breed in ponds and creeks or in marshes during the late winter or early spring after waters recede. Females attach eggs in a single cluster to a vegetation brace just under the surface of the water. The eggs hatch in just over a week and the resulting larvae feed on plant and animal material on the bottom of the pond. It takes at least four months for the larvae to metamorphose into juvenile frogs.

Although red-legged frogs breed on upper Matadero Creek more than three miles upstream from the project site, this species is not expected to occur within the project area, except perhaps on very rare occasions when individuals are washed to the site from breeding areas far upstream. The site is separated from suitable habitat by long reaches of unvegetated, channelized, concrete-lined channel and culverted sections of the stream, which provide neither breeding habitat nor cover sufficient to enable a frog to disperse to the project site (except possibly during floods). There are no recent red-legged frog records from immediate bayside areas in the vicinity of the project site, and therefore the project site is isolated from red-legged frog populations. Furthermore, the abundance of predators such as raccoons, feral cats, bullfrogs, and fish in the project vicinity, as well as the salinity in some parts of the project area, are expected to preclude the survival and successful reproduction of any red-legged frogs that might be washed onto the site during flood events.

San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*). Federal listing status: Endangered; State listing status: Endangered. This species is found in wetland habitats, particularly marshy borders of lakes and ponds, on the northern San Francisco Peninsula. In these habitats it finds cover in dense wetland-obligate plants and feeds primarily on the California red-legged frog and the Pacific treefrog. Populations of the San Francisco garter snake have declined as a result of habitat loss and population declines in its prey species, particularly the red-legged frog. Known populations of the San Francisco garter snake are very localized in distribution, and this subspecies' range is not known to extend south along the edge of the bay as far as Matadero Creek. Given the known range of this subspecies and the presence of potential barriers to dispersal (most notably Highway 101 adjacent to the site), this species is presumed absent from the site.

California Clapper Rail (*Rallus longirostris obsoletus*). Federal listing status: Endangered; State listing status: Endangered. The California Clapper Rail is resident in tidal salt marshes in the vicinity of the San Francisco Bay. It nests from early March through August in the tallest vegetation along tidal sloughs, particularly in California cordgrass (*Spartina foliosa*) and marsh gumplant (*Grindelia stricta*). This species forages along the edges of tidal sloughs, foraging less frequently in shorter marsh vegetation, such as that dominated by pickleweed. Due to the loss of salt marsh habitat around the San Francisco Bay, populations of this species have declined considerably.

Fully tidal salt-marsh habitat is absent from the project site, and there is no cordgrass-dominated habitat on or immediately adjacent to the site. Despite good coverage of lower Matadero Creek, the Emily Renzel wetlands, and the Palo Alto flood control basin by birders, no Clapper Rails have been recorded in the immediate project vicinity. Therefore, this species is presumed absent from the site.

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*). Federal listing status: Endangered; State listing status: Endangered, Protected. The salt marsh harvest mouse is found only in saline wetlands of San Francisco Bay and its tributaries. The southern subspecies *R. r. raviventris* is restricted to an area from San Mateo County and Alameda County along both sides of San Francisco Bay south to Santa Clara County. The salt marsh harvest mouse occurs with the closely related, ubiquitous and abundant western harvest mouse (*R. megalotis*) at upper edges of marshes and in marginal areas. Both animals occur in pickleweed, but the salt marsh harvest mouse replaces the western harvest mouse in denser areas of pickleweed. *R. raviventris* has declined substantially in recent decades. This decline is due primarily to diking and filling of marshes, subsidence, and changes in salinity brought about by increasing volumes of fresh water discharge into the bay. Densely vegetated, tidal, saline marsh dominated by pickleweed is generally considered prime habitat for this species. Moderate populations of salt marsh harvest mouse have also been found in diked marshes. Salt marsh harvest mice may also be found in grassland habitats adjacent to pickleweed marshes, particularly during the spring. These grasslands are generally used by harvest mice only in the spring when new grass growth affords suitable cover and possibly forage. Salt marsh harvest mice may also use adjacent grasslands on a daily basis to avoid high tide events.

This species is known to be present in the Palo Alto flood control basin. The pickleweed habitat within project areas at the southeastern corner of the MSC provides potential habitat for this species and is contiguous with large expanses of pickleweed habitat in the basin. Therefore, this species could potentially be present on the site. However, more detailed surveys of the site are recommended to determine whether the salt marsh harvest mouse is actually present within these areas, thus possibly helping to avoid formal consultation with the USFWS under Section 7 of the federal Endangered Species Act.

Federal or State Candidate Species

Fall-run Chinook salmon (*Oncorhynchus tshawytscha*). Federal listing status: Candidate; State listing status: None. Like the steelhead rainbow trout, the Chinook salmon is an anadromous species. Adults typically spawn in beds of coarse river gravels. Juveniles migrate downstream to the ocean, where they mature. Chinook salmon did not spawn in South San Francisco Bay streams historically. However, in recent years, small numbers of fall-run Chinook salmon have been found spawning in several South San Francisco Bay streams, such as Coyote Creek, Los Gatos Creek, and the Guadalupe River. These fish are likely strays from Central Valley runs, and there is evidence that most are derived from hatchery stock released into Central Valley streams that have native chinook runs. According to the National Marine Fisheries Service (NMFS), South San Francisco Bay fall-run Chinook salmon are included in the Central Valley Fall and Late Fall-run Evolutionary Significant Unit (ESU; Laura Hamilton, pers. comm.). In March 1998, the NMFS proposed several chinook ESUs for protection under the Federal Endangered Species Act, but the Central Valley Fall and Late Fall-run ESU was designated only a Candidate for listing. Although some other Central Valley runs, such as the Sacramento River Winter-run ESU and the Central Valley Spring-run ESU, are federally listed as Threatened or Endangered, the Chinook salmon presumed to be present in South San Francisco Bay streams are fall-run fish. On rare occasions, adult chinook have been detected in South San Francisco Bay streams in summer. Seasonal streamflow and temperature conditions in South San Francisco Bay streams may not be suitable for successful spawning by Sacramento River Winter-run chinook, which typically spawn in late spring and summer, or by Central Valley Spring-run chinook, which typically spawn in late summer and early fall. Therefore, any adult chinook found in the South San Francisco Bay in summer is either an early fall-run fish or a stray from a Central Valley run that is not expected to spawn successfully in South San Francisco Bay streams.

No Chinook salmon are known or expected to spawn in Matadero Creek due to the long reaches of unvegetated, channelized, concrete-lined channel and culverted sections of this stream immediately upstream from the site. In addition, no suitable spawning habitat is present within the heavily sedimented reaches of this stream within the project area. However, it is possible that juvenile chinook from spawning sites elsewhere in the south San Francisco Bay area could enter the Palo Alto flood control basin through the gates in the northeast corner of the basin, and that such fish could occur on occasion in the lower reaches of Matadero Creek.

California Species of Special Concern and State Protected Species

Western Pond Turtle (*Clemmys marmorata*). Federal listing status: None; State listing status: Species of Special Concern. The western pond turtle is a medium-sized brown or olive-colored aquatic turtle found west of the Sierra Nevada crest and deserts and south to northern Baja California. Pond turtles are normally found in and along riparian areas, although gravid females have been reported up to a mile away from water in search of appropriate nest sites. The preferred habitat for these turtles includes ponds or slow-moving water with numerous basking sites (logs, rocks, etc.), food sources (plants, aquatic invertebrates, and carrion), and few predators (raccoons, introduced fishes, and bullfrogs). Juvenile and adult turtles are commonly seen basking in the sun at appropriate sites, although they are extremely wary animals and often dive into the water at any perception of danger. Pond turtles have been commonly observed moving long distances to reach isolated stock ponds and other aquatic habitats. During the summer, they may estivate in leaf duff, well away from riparian areas. They have disappeared from a significant portion of their range due to habitat loss from agriculture, urbanization, water development projects, and the introduction of non-native aquatic predators (i.e. fishes and bullfrogs).

Western pond turtles may, on rare occasions, disperse to lower Matadero Creek from populations far upstream. However, they are unlikely to occur here frequently due to the long reaches of unvegetated, channelized, concrete-lined channel and culverted sections, which isolate the site from suitable habitat far upstream. Successful breeding and the persistence of a population on the site are likely precluded by the abundance of predators such as raccoons, feral cats, bullfrogs, and fish in the project vicinity.

White-tailed Kite (*Elanus caeruleus*). Federal listing status: None; State listing status: Protected. This species prefers habitats with low ground cover and variable tree growth. Kite nests are built near the tops of oaks, willows, or other dense broad-leafed deciduous tress in partially cleared or cultivated fields, grassy foothills, marsh, riparian, woodland, and savannah. Kites prey primarily on small rodents (especially the California vole), but also feed on birds, insects, reptiles, and amphibians. When prey is abundant, these birds may rear two broods in a single breeding season, and nesting activity may occur from early February to early September. White-tailed Kites breed annually in trees along lower Matadero Creek, and this species is expected to breed in riparian vegetation on or immediately adjacent to the project site.

Northern Harrier (*Circus cyaneus*). Federal listing status: None; State listing status: Species of Special Concern. The Northern Harrier is commonly found in open grasslands, agricultural areas and marshes. Nests are built on the ground in areas where long grasses provide cover and protection. In the S. F. Bay area, these nests may be occupied from early February through July. Harriers hunt for a variety of prey, including rodents, birds, frogs, reptiles, and insects by flying low and slow in a traversing manner utilizing both sight and sound to detect prey items. Although Northern Harriers nest in the Palo Alto flood control basin, they are not expected to nest on the immediate project site, as they typically place their nests in the middle of broad expanses of herbaceous vegetation, not as close to the upland edge and to riparian habitat as the diked salt-marsh habitat that occurs on the project site. However, it is possible that an off-site harrier nest could be located close enough to project areas to be potentially impacted by project-related disturbance.

Cooper's Hawk (*Accipiter cooperii*). Federal listing status: None; State listing status: Species of Special Concern. The Cooper's Hawk is a medium-sized hawk that preys on a variety of bird species and occasionally takes small mammals and reptiles. Breeding pairs in California usually select nest sites within dense stands of live oak woodland, riparian habitats, or other wooded areas. However, pairs may also nest in sparsely wooded areas and, especially in recent decades, nesting pairs have been found breeding in suburban areas and parks in the San Francisco Bay area and elsewhere. Although this species is expected to occur on-site primarily during the nonbreeding season, the riparian habitat, and possibly the eucalyptus trees, along Matadero Creek provide potentially suitable nesting sites, and this species is known to breed in Palo Alto not far upstream from the project site.

Burrowing Owl (*Athene cunicularia*). Federal listing status: Migratory Bird Treaty Act (16 U.S.C. 703-711; State listing status: Species of Special Concern. The Burrowing Owl is a small, terrestrial owl of open country. Burrowing Owls favor flat, open grassland or gentle slopes and sparse-shrubland ecosystems. These owls prefer annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, Burrowing Owls are found in close association with California ground squirrels (*Spermophilus beecheyi*). Owls use the abandoned burrows of ground squirrels for shelter and nesting. Ground squirrels provide nesting and refuge burrows, and maintain short vegetation height, which provides visual protection from avian predators and foraging habitat. In the absence of ground squirrel populations, habitats soon become unsuitable for occupancy by owls. Burrowing Owls are semi-colonial nesters, and group size is one of the most significant factors contributing to site constancy by breeding Burrowing Owls. The nesting season, as recognized by the California Department of Fish and Game, runs from February 1 through August 31.

A few Burrowing Owls are known to occur on the closed portion of the Palo Alto landfill just northeast of the project site. However, habitat quality on the project site is marginal, at best, for this species, as the few areas having California ground squirrel burrows and relatively short vegetation (e.g., the ruderal habitats) are in close proximity to taller vegetation, and feral cats and other predators are common in the project area. Therefore, Burrowing Owls are unlikely to occur on the project site except possibly as rare dispersants.

Loggerhead Shrike (*Lanius ludovicianus*). Federal listing status: None; State Listing Status: Species of Special Concern. The Loggerhead Shrike is a predatory passerine that forages in grasslands or ruderal habitats for small reptiles, mammals, birds, and insects and nests in small trees and shrubs. In approximately the last 20 years, populations of the Loggerhead Shrike in eastern North America have declined significantly. Although Loggerhead Shrikes are still considered a fairly common species in much of California, the piecemeal loss of grasslands has caused local declines in many areas, and the species as a whole is declining somewhat in the state. Loggerhead Shrikes are present on the project site, foraging in open ruderal, developed, and salt-marsh habitats and nesting in trees and shrubs.

California Yellow Warbler (*Dendroica petechia brewsteri*). Federal listing status: None; State listing status: Species of Special Concern. Numbers of breeding pairs of California Yellow Warblers have declined in many lowland areas to such an extent that the species has been designated a species of special concern. This insectivore is primarily found in deciduous riparian habitats dominated by alders, cottonwoods, willows, and other small trees and shrubs. This warbler builds a compact nest of weed stalks, shredded bark, and grass high up in a deciduous tree or shrub. Yellow Warblers migrate mostly to Central and South America in the fall and return to California to breed in April. Yellow Warblers are common on the project site during migration. However, they are rare as breeders along the immediate edge of the south San Francisco Bay area, and breeding has not been confirmed in recent years along the project reach of Matadero Creek. Therefore, this species is expected to occur on the site only as a migrant.

Saltmarsh Common Yellowthroat (*Geothlypis trichas sinuosa*). Federal listing status: None; State listing status: Species of Special Concern. The Saltmarsh Common Yellowthroat inhabits emergent vegetation and breeds in fresh and brackish marshes in the San Francisco Bay Area. This subspecies (one of approximately 12 subspecies of Common Yellowthroat recognized in North America) breeds from mid-March through early August, and pairs frequently raise two clutches per year. Saltmarsh Common Yellowthroats have been found during the breeding season from Tomales Bay, Marin County, south to the Santa Clara-Santa Cruz county line. Other subspecies of Common Yellowthroat occur in the region during migration and winter (August-May). Because these subspecies cannot be reliably distinguished in the field, determination of the presence of Saltmarsh Common Yellowthroats can be achieved only by locating nests in the breeding range of this subspecies, or via the observation of Yellowthroats during the summer months when the Saltmarsh Yellowthroat is the only subspecies in the region. Although little is known regarding the movements of this taxon, the wintering area has been described as coastal salt marshes from the San Francisco Bay region to San Diego County (Grinnell and Miller 1944). Saltmarsh Common Yellowthroats are fairly common residents in the freshwater marsh habitat on the project site and in portions of the riparian habitat having dense herbaceous vegetation within or immediately adjacent to the woody riparian corridor.

Alameda Song Sparrow (*Melospiza melodia pusillula*). Federal listing status: None; State Listing Status: Species of Special Concern. The Alameda Song Sparrow is one of three subspecies of Song Sparrow breeding only in salt marsh habitats in the San Francisco Bay area. This subspecies is found in marshes bordering the South San Francisco Bay. Here it is most abundant in the taller vegetation found along tidal sloughs, including salt marsh cordgrass and marsh gumplant, nesting from early March to mid-August. Although it is occasionally found in bulrushes in brackish marshes, the Alameda Song Sparrow is very sedentary and is not known to disperse upstream into freshwater habitats. Populations of the Alameda Song Sparrow have declined due to the loss of salt marshes around the bay, although within suitable habitat it is still fairly common.

Song Sparrows are fairly common residents in the freshwater marsh and riparian habitats on the project site, although the racial identity of the Song Sparrows on the project site is unknown. The location of the interface between populations of the Alameda Song Sparrow and those of the race breeding in freshwater riparian habitats (*M. m. gouldii*) in the vicinity of the project area is not well known due to difficulties in distinguishing individuals of these two races in the field.

Conclusive identification of individual Song Sparrows as *pusillula* (rather than the widespread upland race *M. m. gouldii*) is not possible unless the birds are examined in the hand. Therefore, the Song Sparrows present on the site should be considered to represent *pusillula* unless they can be examined in the hand.

Salt Marsh Wandering Shrew (*Sorex vagrans halicoetes*). Federal listing status: None; State listing status: Species of Special Concern. The salt marsh wandering shrew inhabits medium high marsh 1-8 feet above sea level where abundant driftwood and pickleweed exist. It seems to prefer the moister portions of pickleweed marshes, avoiding higher, drier areas. The distribution of this species in the vicinity of the project site is likely similar to that of the salt marsh harvest mouse, and the pickleweed habitat at the southeastern corner of the project site provides suitable habitat for this species. Therefore, this species could potentially be present on the site.

REGULATED HABITATS AND RESOURCES

Waters of the United States

Results. Matadero Creek and its associated flood channels and embayments are potentially within the legal jurisdiction of the USACE under Section 404 of the Clean Water Act (Figures 2-3). The project area (upstream and downstream of Highway 101) has approximately 0.66 acres of channel habitat, approximately 0.60 acres of coastal salt marsh habitat, and 0.48 acres of freshwater marsh both of which may be considered wetland habitat. In addition to the channel habitat (i.e., aquatic) associated with the ordinary high water of Matadero Creek, Figure 3 documents the presence of coastal salt marsh habitat and fresh water marsh habitat located in the southeastern region of the project site. Approximately one-half of the willow riparian habitat on the south side of the creek is seasonally ponded with 6-8 inches of water due to flooding. During winter storm events, excess rainwater is conveyed out of the main channel of Matadero Creek and into the willow riparian floodplain a breach in the levee of the main creek channel. The remaining areas within the project boundaries met none of the regulatory definitions of jurisdictional waters. These areas are currently being monitored to ascertain their potential individual characteristics.

Habitats Regulated Under Fish and Game Code Section 1600 *et seq.*

Results. Potential CDFG jurisdiction included Matadero Creek channel and associated willow riparian habitat extending north and south of the channel to the edge of riparian spread canopy just beyond the top-of-bank. Any construction activities within the bed and bank of these channels may require that a streambed alteration agreement be concluded with CDFG.

Tree Survey. H. T. Harvey & Associates conducted a reconnaissance level tree survey on January 26, 2000. Survey personnel included a senior plant ecologist (Dr. Patrick Boursier), and Brian Cleary. The entire project area was hiked in order to observe all trees on site. The City of Palo Alto designates that all trees of the species coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*) that are eleven and one-half (11.5) inches in diameter (36 inches in circumference) or more when measured four and one-half (4.5) feet (54 inches) above natural grade, and/or any tree species classified as a "heritage tree" by the City Council in accordance with the provisions of the Title 8 Municipal Code regarding tree preservation and management requirements fall under the jurisdictional protection of the City of Palo Alto. No coast live oak or valley oak trees were observed on site during the reconnaissance level tree survey effort. In addition, no heritage trees have been documented within the boundaries of the project site (Steve Turner pers. comm.).

IMPACTS AND MITIGATION

Development of the project area as proposed will ultimately result in conversion of a portion of the site's developed and undeveloped land into a sediment basin and concrete-lined channel to accommodate sediment storage and the better conveyance of flood flows from Matadero Creek into the Palo Alto Flood Basin. These proposed uses would have a number of impacts on the area's biological resources, which may constitute significant adverse effects. The California Environmental Quality Act (CEQA) and the CEQA Guidelines provide guidance in evaluating project impacts and determining which impacts will be significant. CEQA defines "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed project." Under CEQA Guidelines section 15065, a project's effects on biotic resources are deemed significant where the project would:

- "substantially reduce the habitat of a fish or wildlife species"
- "cause a fish or wildlife population to drop below self-sustaining levels"
- "threaten to eliminate a plant or animal community"
- "reduce the number or restrict the range of a rare or endangered plant or animal"

In addition to the significance criteria discussed above, removal or disturbance of nesting raptors, as discussed in Fish and Game Code section 3503.5, will be considered significant. Finally, in addition to the section 15065 criteria that trigger mandatory findings of significance, Appendix G of the CEQA Guidelines provides a list of other potential impacts to consider when analyzing the significance of project effects. The impacts listed in Appendix G may or may not be significant, depending on the level of the impact. For biological resources, these impacts include whether the project would:

- "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"
- "have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service"
- "have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act"
- "interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites"
- "conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance"

- "conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan"

This section describes the assumptions and thresholds of significance developed to evaluate impacts on the biological resources of the project site that would result from developing the proposed Matadero Creek Flood Control project. Two general assumptions need to be identified to understand the thresholds of significance for impacts to the project site's biotic resources. These assumptions are as follows:

1. Direct impacts to wildlife species are assumed to be correlated with the loss of plant communities that provide their primary habitat. These losses would result from site excavation, channel construction, grading, filling or other damage to habitats, and direct wildlife loss or disturbance by construction activities and human uses. The conversion of these communities to a concrete-lined channel, therefore, may result in the loss of or reduction of use for some wildlife species. The existing wildlife species are usually replaced with a suite of species that tolerate these development activities.

2. Indirect impacts to wildlife could also occur. If remaining fragments of undeveloped habitat are isolated from larger areas of contiguous habitat, the remaining habitats are expected to have lower biological values than those prevailing before development.

The following section addresses potential impacts to biotic resources resulting from: (1) construction disturbance due to widening of approximately 120 feet of concrete-lined channel in the vicinity of the Louis Street bridge; (2) creation of necessary infrastructure and transportation improvements for the area, including modifications of the Louis Street bridge and its approaches; (3) construction and operation of a sediment detention basin immediately adjacent to Matadero Creek downstream of Hwy 101, (4) construction and operation of a bypass channel, and; (5) possible improvements to an access road adjacent to the bypass channel along an existing gravel road around the perimeter of the MSC.

For purposes of this report, it is assumed that development would only require a 10-foot construction buffer zone downstream of U. S. Highway 101 from the Matadero Creek/Flood Basin side of the development. We have received assurances from the project engineers that this is the likely case, since the construction crews will be able to work from the MSC. However, we have also included the amount of additional mitigation that would be required if the construction activities expand beyond that distance and into a 30-foot buffer zone.

IMPACTS FOUND TO BE LESS-THAN-SIGNIFICANT

Direct Loss of Ruderal and Developed Habitat

A total of 1.2 acres of ruderal and developed habitat will be lost due to its direct conversion into a concrete-lined bypass channel and possible future riparian mitigation. Ruderal and developed habitat is abundant throughout the region, and the floristic composition of these habitats is characterized by non-native and often invasive species that offer only marginal habitat for most vertebrate species. Since the project development impacting ruderal habitat would be landscaped and planted with native vegetation, and given the fact that ruderal vegetation is regionally common, the loss of ruderal and developed habitat as a consequence of the project will result in less-than-significant impact. Therefore, the loss of these habitat types will result in a less-than-significant impact (but see *Potential Impacts to Nesting Raptors* below).

Direct Loss of Eucalyptus Habitat

Although most of the eucalyptus forest on-site would be removed by development (a total of 0.5 acres), the overall plant diversity in eucalyptus groves is relatively low due to the toxic leachates from leaf litter shed by eucalyptus. Toxic leachates of this nature constitute allelopathic agents that inhibit the growth of competing native vegetation. As a consequence of low plant species diversity, the number of animal species that inhabit most of these groves is less than the adjacent biodiverse willow riparian habitat. Accordingly, loss of eucalyptus habitat is a less-than-significant impact (but see *Potential Impacts to Nesting Raptors* below).

Impacts to Habitat for Certain Special-Status Plant and Animal Species

The special-status plant species marsh gumplant (*Grindelia stricta* var. *angustifolia*) was identified during the survey effort in the southern section of the project site growing along both sides of the gravel maintenance road directly adjacent to the east side of the MSC. The plant was found primarily in ruderal, disturbed habitat associated with the maintenance road and to a lesser extent, in coastal salt marsh habitat directly adjacent to the east side of the road. Marsh gumplant is geographically abundant in coastal salt marsh habitat throughout Monterey and the San Francisco Bay Area. This plant is closely related to, and often hybridizes with, the Great Valley gum-plant (*Grindelia camporum*), a very common species ranging throughout the central valley and foothills of California. It also extends south into Baja, Mexico. Marsh gumplant is particularly common in the southern regions of the San Francisco Bay Area. For example, over 37 acres including tens-of-thousands of individual plants were documented in coastal salt marsh habitat in 1999 as part of a project involving mapping of plant associations of the South San Francisco Bay (Patrick Boursier pers.comm.).

Approximately 25-50 individuals of marsh gum-plant may be impacted as a result of the proposed project. Because marsh gum-plant prefers the slightly drier, elevated, and more disturbed ecotonal fringes of coastal salt marsh habitat, it is expected to recolonize naturally into those portions of the project area to be impacted by the proposed development. Therefore, the loss of these individuals will result in a less-than-significant impact to marsh gum-plant.

Most of the additional special-status plants occurring in the vicinity of the project site with the exception of sea blite, Congdon's tarplant, and hairless popcorn flower are found in habitat types that do not occur on the project site. Because the coastal salt marsh habitat located on the project site is diked, potential suitable habitat for several of the plant species listed above is less than optimal. In addition, most of the special-status plant species occurrences that are documented by the California Department of Fish and Game CNDDB, and are located in the vicinity of the project site are considered "historical" (over 25 years old). This further reduces the likelihood of additional special-status plant species occurring on the project site.

No suitable habitat exists for, and/or the project site is outside the known distribution of, several of the animal species listed in Table 2. These include the Sacramento River winter-run and spring-run Chinook salmon, California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylii*), San Francisco garter snake, American White Pelican (*Pelecanus erythrorhynchos*), California Clapper Rail, California Least Tern (*Sterna antillarum brownii*), California Black Rail (*Laterallus jamaicensis coturniculus*), Western Snowy Plover (*Charadrius alexandrinus nivosus*), California Horned Lark (*Eremophila alpestris actia*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and ringtail (*Bassariscus astutus*). These species are not expected to occur on the project site and would thus not be affected by the project.

Some special-status terrestrial vertebrates may only be occasional visitors, migrants, or transients on the project site, if they occur on the site at all. These vertebrates include the western pond turtle, Double-crested Cormorant (*Phalacrocorax auritus*), Sharp-shinned Hawk (*Accipiter striatus*), Golden Eagle (*Aquila chrysaetos*), Prairie Falcon (*Falco mexicanus*), Merlin (*Falco columbarius*), American Peregrine Falcon (*Falco peregrinus anatum*), Long-billed Curlew (*Numenius americanus*), California Gull (*Larus californicus*), Vaux's Swift (*Chaetura vauxi*), Willow Flycatcher (*Empidonax traillii*), California Yellow Warbler, Tricolored Blackbird (*Agelaius tricolor*), Townsend's big-eared bat (*Corynorhinus townsendii*), pallid bat (*Antrozous pallidus*), and California mastiff bat (*Eumops perotis californicus*). The Northern Harrier is also present on the immediate project site only as a forager, although it breeds adjacent to the site. The project will have no effect on the breeding success of any of these species, although it will result in a small reduction of foraging and/or roosting habitat available to them regionally. Due to the abundance of similar habitats regionally and the minimal nature of project impacts to habitat used by these species, however, the project is expected to have a less-than-significant impact on these species that do not breed on the site.

The steelhead rainbow trout and fall-run Chinook salmon are not expected to spawn in Matadero Creek, and very little riparian habitat along the immediate banks of the creek will be permanently impacted by this project. Therefore, no long-term significant impacts to salmonid habitat are expected to result from this project (however, see *Potential Impacts to Steelhead Rainbow Trout and Fall-run Chinook salmon* below). Similarly, the California red-legged frog is not expected to breed along lower Matadero Creek. This species is unlikely to occur on the project site at all, except possibly on very rare occasions when floods wash an individual to the project site from breeding areas far upstream. Therefore, the project is not expected to result in a significant impact to red-legged frog habitat (but see *Potential Impacts to Individual California Red-legged Frogs During Construction* below). Likewise, the Burrowing Owl is unlikely to occur on the site, except possibly as a rare dispersant. If no Burrowing Owls are recorded on the site during preconstruction surveys, impacts to Burrowing Owl habitat from this project are considered less than significant (but see *Potential Impacts to Burrowing Owls and their Burrows, Nests, Eggs, or Young* below).

Several special-status species may breed on the site. At most, one or two pairs of the Loggerhead Shrike, and one pair each of the Cooper's Hawk and White-tailed Kite, may nest on the project site. These species are fairly common breeders in central California, and populations of the latter two species seem to be fairly stable regionally and on a statewide level (shrike populations may be declining somewhat in California). Because the project site represents a very small fraction of the available breeding habitat for these species in the region, project impacts to habitat of these species are expected to be less than significant (but see *Potential Impacts to Nesting Raptors* below).

The Saltmarsh Common Yellowthroat and Song Sparrow, possibly including the Alameda Song Sparrow, are fairly common breeders in riparian and dense wetland vegetation on the project site. Although the regional abundance of both species is moderately low due to the limited extent of suitable habitat, these species are still fairly common where suitable habitat is present. In addition, the project is not expected to result in the permanent loss of more than a small amount of habitat. Therefore, project impacts to habitat of these species are expected to be less than significant (but see *Potential Impacts to Nesting Saltmarsh Common Yellowthroats and Alameda Song Sparrows* below).

IMPACTS FOUND TO BE SIGNIFICANT

Indirect and Direct Losses of Wetland Habitat

Impacts to wetland habitat (0.11 acres) will occur within the willow riparian habitat impact area; a reconnaissance level survey for USACE jurisdiction indicated that USACE jurisdiction potentially occurs within that habitat. A formal delineation will be conducted during future design phases. If USACE jurisdiction is found within the willow riparian habitat impact area direct impacts to jurisdictional areas would be considered significant and warrant mitigation. Implementation of the following mitigation measures would reduce this impact to a less-than-significant level. In addition to implementing Mitigation 1 and 2, prior to grading project developers should obtain and comply with permits from the USACE, CDFG, and the RWQCB, as necessary.

Mitigation 1. Avoidance and Minimization. Site development should be designed to avoid or minimize removal of wetland habitat, and construction crews should be made aware of sensitive habitats that should be avoided.

Mitigation 2. Replacement. The project should create new wetland habitat to replace the wetlands to be impacted. The following is a description of the proposed mitigation location, basic design elements, and mitigation goal.

A suitable location for creating new wetlands occurs east of the project within the Palo Alto Flood Basin. The Flood Basin is a mosaic of riparian, wetland and ruderal habitats. Wetland mitigation could be created, adjacent to the existing wetland habitat, by excavating ruderal (upland) areas on the east side of the proposed bypass channel to an elevation (approximately –1.2 feet NGVD) appropriate for the establishment of wetland vegetation and hydrology. Based on a field examination, the soils to be exposed by the proposed excavation would be fully suitable for wetland habitat restoration. Following excavation the soils should be lightly ripped to relieve compaction.

The restored wetland would be located between the bypass channel and the Flood Basin and would have muted tidal hydrology similar to existing wetlands within the flood basin. Both freshwater wetlands and salt marsh will be restored at this location. Planting the site with appropriate plant species immediately following excavation will be necessary to facilitate wetland habitat establishment. Furthermore, a non-native plant eradication program will need to be undertaken to prevent colonization by invasive species.

The project proposes to create a minimum of 0.22 acres of new wetland habitat. The new wetland habitat will be a combination of both freshwater marsh and diked salt marsh. The actual amount of wetland mitigation will be adjusted once a formal delineation if completed. The mitigation goal is to create high quality wetland habitat that meets the target acreage and replaces the habitat functions and values of the impact areas. The mitigation goal should be achieved within three to five years of site construction.

A detailed wetland restoration plan should be developed for this mitigation area during the regulatory permitting phase of the project. This plan should follow USACE guidelines and should incorporate additional studies and details, including the following:

- Type and acreage of wetland to be impacted and goals for wetland creation;
- Detailed assessment of soil suitability for wetland creation;
- Description of site hydrology, including depth and duration of ponding, potential for scour or deposit of sediments, etc.;
- Site preparation measures, including grading methods, to relieve compaction and/or ensure low potential for scouring of soils;
- Revegetation and erosion control on slopes surrounding the mitigation site;
- Description of buffer areas around the mitigation;
- Maintenance program;
- Long term monitoring program, including performance and success criteria; and;
- Measures to assure protection from human disturbance and to protect the area from development in perpetuity.

Indirect and Direct Losses of Riparian Habitat

A total of 0.78 acres of willow riparian habitat will be impacted by the project. The project will result in approximately 0.68 acres of direct impacts to willow riparian habitat. Construction impacts will remove an additional 0.10 acres of riparian habitat. All willow riparian habitat that will be impacted by the sediment basin and bypass channel will be mitigated with 2.34 acres of riparian habitat.

The mitigation goal is to achieve high quality riparian habitat that meets the target acreage. The following mitigation measures, if implemented, will reduce these impacts to a less-than-significant level. In addition to implementing Mitigation 1, 2, and 3, prior to grading project developers should obtain and comply with permits from the USACE, CDFG, and the RWQCB, as necessary.

Mitigation 1. Avoidance and Minimization. The project should be designed to avoid or minimize removal of riparian habitat.

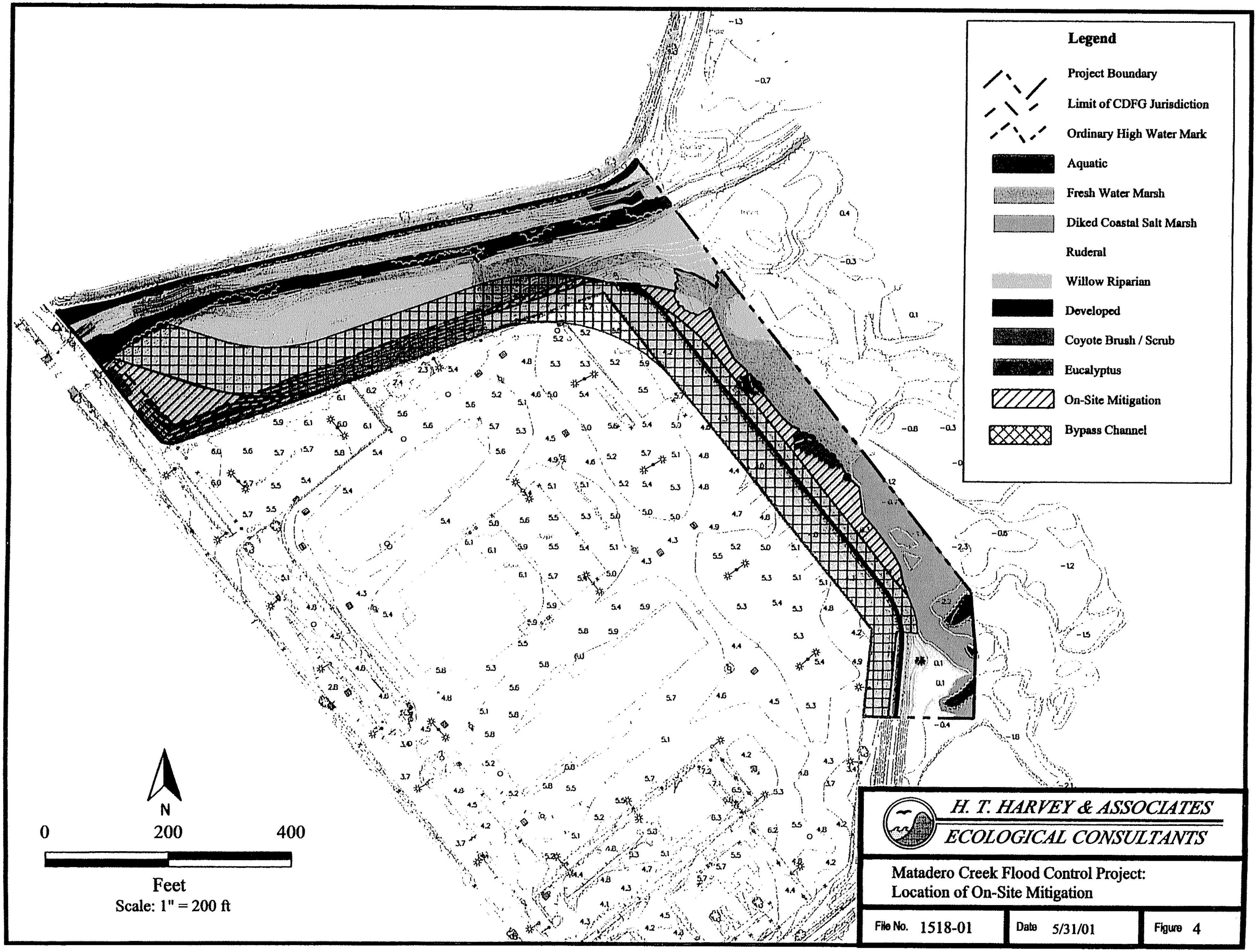
Mitigation 2. Restoration and Enhancement. The project should create new riparian habitat to replace the impacted areas. The following is a description of the proposed mitigation locations, basic design elements, and mitigation goal.

On-site Mitigation. Some suitable locations for creating new riparian habitat occur on-site adjacent to the proposed bypass channel (Figure 4). The banks along the downstream (southeastern) end of the flood bypass channel provide a good planting area for the creation of new riparian habitat. The eastern side of the bypass channel currently comprises a levee (developed habitat) and an upland area (ruderal habitat) that will be removed during construction of the bypass channel. This area is the preferred location for onsite riparian planting. Restoration of riparian habitat at this site would occur following the completion of the bypass channel. The levee and adjacent upland areas will be excavated to approximately 0.0 feet NGVD and soils ripped to relieved compaction. Contract grown red willow and cottonwood plantings, and other native trees and shrubs, would be installed within the riparian restoration area, adjacent to the bypass channel, following an approved restoration plan.

Additional onsite riparian mitigation opportunities occur where willow riparian habitat will be removed during construction but no hardscape (e.g. concrete, riprap, etc.) will be installed, thus allowing replanting with native plants. Such an area occurs along East Bayshore Drive and southwest of the proposed sediment basin.

It is estimated that approximately 0.97 acres of riparian mitigation can be accommodated adjacent to the bypass channel and in areas "temporarily" impacted by construction activities (including areas where willow riparian vegetation was removed during construction activities). This is not adequate for the project's mitigation requirements; therefore, off-site mitigation is proposed.

Off-site Mitigation. Extensive field surveys were conducted to identify suitable offsite mitigation areas, starting with sites closest to the impact areas and moving further afield as needed. The proposed off-site mitigation location is at Laura Lane on San Francisquito Creek, approximately 1 mile northwest of the impact site (Figure 1). This site is located immediately adjacent to a Santa Clara Valley Water District maintenance road and is owned by the Santa Clara Valley Water District. Although the mitigation site is separated from the top of bank by the maintenance road, the canopy of native riparian trees rooted at top of bank currently overhangs the road. Riparian mitigation plantings could establish a canopy cover continuous with



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Matadero Creek Flood Control Project:
Location of On-Site Mitigation

File No. 1518-01	Date 5/31/01	Figure 4

the existing native canopy and provide for an extended riparian habitat area.. Approximately 2.2 acres is available for mitigation at this site. Together with the onsite mitigation this would suffice for the project's riparian mitigation needs.

Riparian restoration at the Laura Lane site will include the planting of more drought tolerant plant species such as coast live oak, California buckeye, and other native trees and shrubs commonly found along the area's riparian corridors. Numerous, mature English walnut (*Juglans regia*) trees are present at the Laura Lane site.

The restoration of this site will include the girdling of the English walnut trees followed immediately by the application of Rodeo to ensure tree fatality. This will be done at least one year prior to site planting. All dead English walnut trees will be left on site to provide woody debris for the riparian corridor of San Francisquito Creek. Soils on site are adequate to support the growth of native riparian tree species. Riparian plantings should be contract grown from native material and installed following an approved planting plan.

The actual amount of riparian restoration areas should be determined upon completion of a detailed impact assessment, using detailed site construction plans during preparation of the restoration plan. Additional appropriate locations are not readily available for riparian mitigation; therefore, it is imperative that construction impacts remain restricted to the level identified in this document.

The mitigation goal is to create the target acreage of high quality riparian habitat within CDFG jurisdiction. The riparian habitat will provide some habitat values in the first five years following planting, and will provide the values of mature riparian forest approximately 8-10 years after planting. A detailed restoration plan should be prepared as part of the regulatory permitting for the project, and should address the same elements as described above for wetland mitigation.

Mitigation 3. Minimize Project Impacts to the Riparian Corridor During Construction Phase. During the construction phase of any proposed development improvement, the riparian corridor should be protected from potential runoff and further encroachment. A temporary plastic fence should identify the edge of the construction buffer zone. Crews on the site should make every effort to remain within the prescribed 10-foot buffer zone.

Potential Impacts to Steelhead Rainbow Trout and Fall-run Chinook salmon

Steelhead rainbow trout and fall-run Chinook salmon are not expected to spawn in Matadero Creek, and very little riparian habitat along the immediate banks of the creek will be permanently impacted by this project. Therefore, no long-term significant impacts to salmonid habitat are expected to result from this project. Nevertheless, project activities could result in two potentially significant impacts to steelhead rainbow trout and Chinook salmon: impacts to water quality, and introduction of barriers to movement along the creek.

Construction could adversely affect water quality through increased input of sediments into the Matadero Creek channel, perturbation of sediments within the channel, and leaching of substances from fresh cement poured during project implementation. Water quality impacts could affect steelhead and salmon both on the site and in downstream areas.

Although these species are unlikely to occur on the project site frequently or in large numbers (given that they do not spawn in Matadero Creek), it is possible that they could occur on and upstream from the bypass channel project site. Therefore, temporary dewatering of a portion of lower Matadero Creek during construction could potentially introduce a barrier to movement of steelhead and Chinook salmon along the creek. Such barriers may prevent individuals of these species foraging upstream from the dewatering/diversion site from moving to downstream areas, potentially trapping salmonids.

Implementation of the following mitigation measures is expected to reduce project impacts to steelhead rainbow trout and Chinook salmon to less-than-significant levels. If the National Marine Fisheries Service (NMFS) concludes that project impacts (e.g., dewatering of the creek or water-quality impacts) are significant, the USACE as the head permitting agency may elect to initiate consultation on a formal or informal basis with the NMFS under Section 7 of the federal Endangered Species Act.

Mitigation 1. Limit construction to the dry season. Construction within the channel should be restricted to the dry season (June 1 - September 30), the period in which there is minimal water in the channel and in which the presence of these species within the project area is expected to be minimal.

Mitigation 2. Minimize impacts to water quality. Measures to prevent or minimize a reduction in water quality during construction are also necessary. Any concrete poured during construction should be completely dried before it comes into contact with creek waters. In addition, if the mitigation measures listed above under *Potential Degradation of Water Quality During Construction* are implemented, water quality-related impacts to steelhead and Chinook salmon should be reduced to less-than-significant levels.

Mitigation 3. Maintain connectivity of the stream channel during construction. Because it is possible that anadromous salmonids could be present in lower Matadero Creek during any time of year, including the dry season, measures should be taken to ensure that movement of these species is not prevented by any water diversion structures used during construction, regardless of when construction occurs. Water should be diverted through the site by way of an open ditch (rather than a pipe) connecting the portions of Matadero Creek immediately upstream and downstream from the site. This plastic-lined ditch should also be lined with cobble-sized stones or another natural substrate occurring at the diversion site to deter predation by making the fish less conspicuous as they pass through the channel. Water within this ditch should be at least 12 inches deep, and no impediments to movement, such as high drop structures, should be present.

Potential Impacts to Individual California Red-legged Frogs During Construction

California red-legged frogs are not expected to breed on the project site, and this species is unlikely to occur at all on the site, except possibly on very rare occasions when a flood washes an individual to the site from areas far upstream. If a red-legged frog is present on-site during construction, the loss of an individual would constitute a significant impact. Implementation of the following mitigation measures will reduce project impacts on this species to less-than-significant levels.

Mitigation 1. Preconstruction surveys. A survey for this species within the immediate impact site should be conducted immediately before construction begins. Surveys should be conducted for three nights prior to construction in and along the creek bed. If frogs are found on the site, the USFWS should be contacted, and formal consultation under Section 7 of the Endangered Species Act may be necessary.

Mitigation 2. Remove vegetation prior to construction. If frogs are not found on the site during preconstruction surveys, all vegetation within the impact areas should then be completely removed just prior to the initiation of construction.

Potential Impacts to Nesting Raptors

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under both federal and state laws and regulations. The federal Migratory Bird Treaty Act (16 U.S.C. § 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Birds of prey are protected in California under Fish and Game Code section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG. Any loss of fertile raptor eggs or nesting raptors, or any activities resulting in raptor nest abandonment, would constitute a significant impact. Construction activities such as tree removal, site grading, etc., that disturb a nesting raptor on-site or immediately adjacent to the construction zone would constitute a significant impact.

Several raptors, including special-status species such as the Northern Harrier, Cooper's Hawk, and White-tailed Kite, are known to occur in the project vicinity and may breed either on the site or close enough that nests may be potentially disturbed by project-related disturbance. Therefore, the mitigation measures described below should be implemented to reduce the adverse environmental effects of the proposed project on any raptors nesting within the project site or immediately adjacent to the site. Implementation of Mitigation 1 or 2 is expected to reduce the potential project-related environmental effects on nesting raptors to a less-than-significant level.

Mitigation 1. Nesting season avoidance. Construction should be scheduled to avoid the nesting season to the extent possible. In the south San Francisco Bay area, most raptors breed from February through August. However, some White-tailed Kites may begin nest-building as early as January, and kites may have young in the nest through September. If construction can be scheduled to occur between October and December, the nesting season would be avoided, and no impacts to nesting raptors would be expected.

Mitigation 2. Preconstruction/predisturbance surveys. If it is not possible to schedule construction between October and December, preconstruction surveys for nesting raptors should be conducted by a qualified ornithologist in order to ensure that no active raptor nests will be disturbed during project implementation. Preconstruction surveys should be conducted no more than 14 days prior to the initiation of construction activities during the early part of the breeding season (January through April) and no more than 30 days prior to the initiation of these activities during the late part of the breeding season (May through August). During this survey, the ornithologist would inspect all trees in and immediately adjacent to the impact areas for raptor nests. All herbaceous salt marsh and grassland habitat within 250 feet of project impact areas should also be surveyed for Northern Harrier nests. If an active raptor nest is found close enough to the construction area to be disturbed by these activities, the ornithologist, in consultation with CDFG, would determine the extent of a construction-free buffer zone (typically 250 feet) to be established around the nest.

Potential Impacts to Burrowing Owls and their Burrows, Nests, Eggs, or Young

As discussed above, raptors, including owls, and their nests are protected under both federal and state laws and regulations, including the Migratory Bird Treaty Act and California Fish and Game Code section 3503.5. A few Burrowing Owls are known to occur on the closed portion of the Palo Alto landfill just northeast of the project site. However, habitat quality on the project site is marginal, at best, for this species, as the few areas having California ground squirrel burrows and relatively short vegetation (e.g., the ruderal habitats) are in close proximity to taller vegetation, and feral cats and other predators are common in the project area. Therefore, Burrowing Owls are unlikely to occur on the project site except possibly as rare dispersants.

However, if Burrowing Owls are present on-site at the time of construction, construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG. Furthermore, the destruction of occupied Burrowing Owl burrows is also considered a taking. Any loss of Burrowing Owls or fertile eggs, any activities resulting in nest abandonment, or the destruction of occupied Burrowing Owl burrows would constitute a significant impact. Construction activities such as tree removal, site grading, etc., which disturb a nesting Burrowing Owl on-site or immediately adjacent to the site (to the construction zone only) or destroy occupied burrows would constitute a significant impact. The loss of occupied habitat would also constitute a significant impact.

Implementation of Mitigation 1, in conjunction with either Mitigation 2 or 3, as warranted, would reduce potential project impacts on Burrowing Owls to a less-than-significant level.

Mitigation 1. Preconstruction surveys and buffer zones. In conformance with federal and state regulations protecting raptors against direct "take," pre-construction surveys for Burrowing Owls should be conducted by a qualified ornithologist prior to any soil-altering activity or economic development occurring within the project area. The preconstruction surveys should be conducted per CDFG guidelines (currently no more than 30 days prior to the start of site grading), regardless of the time of year in which grading occurs. If no Burrowing Owls are found, then no further mitigation would be warranted. If breeding owls are located on or immediately adjacent to the site, a construction-free buffer zone around the active burrow must be established as determined by the ornithologist in consultation with CDFG. No activities, including grading or other construction work or evictions of owls, should proceed that may disturb breeding owls.

Mitigation 2. Eviction and off-site compensation. If preconstruction surveys determine that Burrowing Owls occupy the site, and avoiding development of occupied areas is not feasible, then the owls may be evicted with the authorization of the CDFG. CDFG typically allows eviction of owls only during the nonbreeding season (1 September-31 January). Such authorization generally requires habitat compensation on off-site mitigation lands.

Potential Disturbance of Nesting Waterbirds During Construction

Waterbirds such as the Mallard, Gadwall, Pied-billed Grebe, and American Coot may nest in project areas within or immediately adjacent to Matadero Creek just downstream from Highway 101. These species and the Canada Goose, Northern Pintail, Gadwall, Cinnamon Teal, and possibly the American Avocet, Black-necked Stilt, and others, may nest in or very close to impact areas in the diked salt marsh and the adjacent pond at the southern end of the project site. If construction were to occur when nesting waterbirds were present in and around these ponds, nests could be destroyed, and nests in close proximity to the project alignment could be abandoned as a result of project-related disturbance. Such destruction and project-caused abandonment of nests would constitute a significant impact, as these species are protected by the federal Migratory Bird Treaty Act, some of these species are uncommon and local breeders in the south S.F. Bay area, and there is the potential for fairly large numbers of nesting waterbirds to be present in the vicinity of the project area.

Implementation of the following mitigation measures is expected to reduce project impacts on nesting waterbirds to less-than-significant levels.

Mitigation 1. Avoidance of breeding-season construction. To avoid impacts to these birds' nests, construction should take place during the nonbreeding season (1 September-1 March for most of these species).

Mitigation 2. Preconstruction surveys and avoidance of nests. If construction is to occur during the breeding season (1 March to 1 September), preconstruction surveys should be conducted by a qualified ornithologist no more than 15 days prior to the initiation of construction in any given area. If any waterbird nests are found to be present within or near the impact areas during the breeding season, a construction-free buffer around any active nest should be established, the width of this buffer being determined by an experienced ornithologist in consultation with CDFG. This buffer should be respected until nesting has been completed.

Potential Disturbance of Nesting Swallows During Construction

Cliff and Barn Swallows, among the many species protected by the federal Migratory Bird Treaty Act, nest on several of the bridges along lower Matadero Creek. A large colony is present on the bridge carrying Highway 101 and the frontage road over the creek, and these species could also breed on other bridges on lower Matadero Creek. The project could potentially have significant impacts on nests of these species if any structures to which the nests are attached are directly altered, causing the loss of nests with eggs or young, or if construction occurs close enough to active nests to cause the abandonment of nests with young.

Implementation of the following mitigation measures is expected to reduce project impacts to nesting Barn and Cliff Swallows to less-than-significant levels.

Mitigation 1. Avoid nesting-season construction near bridges. Construction should be scheduled to avoid the nesting season. The Department of Fish and Game recognizes the period between February 15 and September 1 as the swallow nesting season in this area. If it is not possible to schedule construction on the bridges and their supports to occur between September and mid-February, then Mitigation 2 and either Mitigation 3 or 4, if warranted, should be implemented.

Mitigation 2. Preconstruction surveys. Preconstruction surveys for nesting swallows should be conducted to ensure that they are not utilizing areas to be disturbed during construction.

Mitigation 3. Remove nests before February 15. All old nests in areas that would be disrupted by the proposed work should be removed before the swallow colony returns to the nesting site. This work should commence prior to February 15. Once the birds return, removal must be repeated at a frequency necessary to prevent nest completion or until project construction is complete.

Mitigation 4. Obtain permit to destroy occupied nests. Intact swallow nests are assumed to be occupied between February 15 and September 1. To remove/destroy nests during this period, a permit must be obtained from USFWS, Division of Animal Damage Control. A Fish & Wildlife permit requires compelling justification – a clear case that the work is essential to public safety. Any eggs removed from nests would require incubation by an approved wildlife rescue group (current cost is approximately $200 per swallow raised).

Potential Impacts to Nesting Saltmarsh Common Yellowthroats and Alameda Song Sparrows

Saltmarsh Common Yellowthroats and Song Sparrows, possibly including the Alameda Song Sparrow, are fairly common breeders in riparian and dense wetland vegetation on the project site. If construction takes place during the breeding season, which extends roughly from early March to mid-August for both species, the nests, eggs, and/or young of these species could be destroyed or abandoned due to project-related disturbance. Earth-moving or other activities that physically alter vegetation used for nesting could result in direct impacts to nests of these species, and construction work in close proximity to active nests could potentially disturb adults to the point of nest abandonment. Such destruction or abandonment of nests of these species would constitute a significant impact. Therefore, implementation of one or both of the following mitigation measures is necessary to reduce impacts to breeding Saltmarsh Common Yellowthroats and Song Sparrows to less-than-significant levels.

1. **Restrict construction activities to the nonbreeding season.** Saltmarsh Common Yellowthroats and Alameda Song Sparrows may breed from early March to mid-August. If construction in close proximity to potential nesting habitat can be scheduled to occur between mid-August and late February, the nesting season would be avoided, and no impacts to nesting yellowthroats and Song Sparrows would occur.

2. **Preconstruction surveys.** If construction is to occur during the breeding season near potential nesting habitat, preconstruction surveys should be conducted by a qualified ornithologist no more than 15 days prior to the initiation of construction in any given area. If Common Yellowthroat or Song Sparrow nests are found to be present within or near the impact areas during the breeding season, a construction-free buffer around any active nest should be established, the width of this buffer being determined by an experienced ornithologist in consultation with CDFG. This buffer should be respected until nesting has been completed.

Potential Impacts to Salt Marsh Harvest Mice and Salt Marsh Wandering Shrews

The salt marsh harvest mouse is known to be present in the pickleweed-dominated habitats of the Palo Alto flood control basin, and it is possible that the salt marsh wandering shrew occurs here as well. The project is expected to result in temporary impacts to a small amount of pickleweed-dominated habitat at the southeastern corner of the MSC. Because this pickleweed is contiguous with large expanses of pickleweed in the flood control basin, the salt marsh harvest mouse and salt marsh wandering shrew could potentially be present within the project site. If present, these species could be impacted due to temporary loss of habitat and loss of individuals during project construction, both of which constitute significant impacts.

Implementation of the following mitigation measures, in consultation with the USFWS, will reduce project impacts to the salt marsh harvest mouse and salt marsh wandering shrew to less-than-significant levels. If the project were to impact this species, the USACE as the head permitting agency may elect to initiate consultation on a formal or informal basis with the U.S.

Fish and Wildlife Service (USFWS) under Section 7 of the federal Endangered Species Act. However, if more detailed surveys of the site determine that the salt marsh harvest mouse is absent from impact areas or likely present only occasionally, informal consultation may be sufficient to address issues related to the salt marsh harvest mouse.

Mitigation 1. Remove vegetation from impact areas by hand. Within 10 days prior to the initiation of construction in areas supporting pickleweed, all vegetation within these areas should be removed by hand.

Mitigation 2. Minimize impacts and monitor construction. Impacts to pickleweed habitats should be minimized by restricting all such impacts to the area from which vegetation had been removed as described above. A biologist permitted to handle salt marsh harvest mice should be present during construction within this area to help ensure that adjacent vegetation is not impacted and to salvage any small mammals found within this area during construction.

Mitigation 3. Restoration of impacted habitat. Areas in which pickleweed will be impacted should be replanted with pickleweed following construction to restore habitat for the salt marsh harvest mouse and salt marsh wandering shrew. A mitigation and monitoring plan for the restoration of this habitat should be developed by a qualified biologist and approved by the USFWS.

PROJECT IMPACTS THAT CANNOT BE MITIGATED TO A LESS-THAN-SIGNIFICANT LEVEL

The adoption and successful implementation of the mitigation measures identified in this report should mitigate project impacts to biotic resources to a less-than-significant level. Therefore, if these mitigation measures are implemented, there would be no significant unavoidable impacts from the project.

CUMULATIVE IMPACTS

GENERAL PLAN PROJECTIONS

CEQA mandates that the impacts of the Matadero Creek Flood Control project be analyzed in conjunction with other related past, current, and probable future projects whose impacts might compound or interrelate with those of the project (Pub. Res. Code § 21083 (b), CEQA Guidelines § 15130).

The improvements proposed for the Matadero Creek Flood Control project are in addition to flood protection projects that have been implemented on Matadero and Barron Creeks. These past projects have controlled flows in Matadero and Barron Creek upstream via a diversion that limits flows in both channels. Furthermore, Matadero and Barron Creeks are both concrete lined channels with floodwalls at top of bank from El Camino Real to Highway 101.

The Palo Alto Flood Basin is a highly managed system that retains water from storm events and releases the water into San Francisco Bay on low tides. Matadero, Barron and Adobe Creeks all flow into the Palo Alto Flood Basin. No future flood protection projects will be necessary on either Matadero or Barron Creeks. Flood protection levees surrounding the Palo Alto Flood Basin could be raised in the future in order to be certified by FEMA.

CUMULATIVE BIOTIC IMPACTS

Impacts to sensitive resources within the Palo Alto Flood Basin from the Matadero Creek Flood Protection project will be relatively minimal because of the placement of the bypass channel within highly disturbed areas adjacent to the Flood Basin. Nonetheless some impacts to riparian and wetland habitats will occur as a result of this project. However, given that adequate mitigation appears feasible, these impacts could be reduced to a less-than-significant level.

All other habitats that will be impacted as a result of this project are relatively common in the Palo Alto Flood Basin and adjacent baylands. Furthermore, extensive opportunities exist for mitigation for impacts from this and any future projects that impact these habitats.

PERSONAL COMMUNICATION

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APPENDIX A TO H.T. HARVEY & ASSOCIATES BIOLOGICAL RESOURCES SECTION

PLANTS OF THE MATADERO CREEK FLOOD CONTROL PROJECT AREA

Appendix A. Vascular Plants Observed at the Matadero Creek Flood Control Project Site, Palo Alto, California

FAMILY NAME	SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS
Apiaceae	*Conium maculatum*	poison hemlock	FACW
	Foeniculum vulgare	sweet fennel	FACU
Apocynaceae	*Nerium oleander*	oleander	NOL
	Vinca major	Greater periwinkle	NOL
Araliaceae	*Hedera helix*	English ivy	NOL
Arecaceae	*Washingtonia* sp.	fan palm	---
Asteraceae	*Achillea millefolium*	common yarrow	FACU
	Artemisia douglasiana	California mugwort	FACW
	Aster sp.	aster	---
	Baccharis pilularis	coyote brush	NOL
	Centaurea solstitialis	yellow star thistle	NOL
	Cirsium vulgare	bull thistle	FACU
	Conyza canadensis	horseweed	FAC
	Grindelia sp.		---
	Picris echioides	bristly ox-tongue	FAC+
	Senecio mikanioides	German ivy	NOL
	Silybum marianum	milk thistle	NOL
Brassicaceae	*Raphanus sativus*	wild radish	NOL
	Rorippa nasturtium-aquaticum	water cress	NOL
Caprifoliaceae	*Sambucus mexicana*	blue elderberry	FAC
Chenopodiaceae	*Atriplex* sp.	atriplex	---
	Beta vulgaris	beet	FACU
	Salicornia virginica	common pickleweed	OBL
Dipsacaceae	*Dipsacus* sp.	teasle	---
Hippocastanaceae	*Aesculus californica*	California buckeye	NOL
Juglandaceae	*Juglans hindsii*	Northern California black walnut	FAC
	Juglans regia	English walnut	NOL
Juncaceae	*Juncus* sp.	rush	---
Malvaceae	*Malva parviflora*	cheeseweed	NOL
Myoporaceae	*Myoporum laetum*	myoporum	NOL
Myrtaceae	*Eucalyptus* sp.	eucalyptus	---
Oxalidaceae	*Oxalis corniculata*	creeping oxalis	FACU
Pinaceae	*Pinus* sp.	pine	---
Poaceae	*Arundo donax*	giant reed	FACW
	Distichlis spicata	salt grass	FACW

Appendix A. Vascular Plants Observed at the Matadero Creek Flood Control Project Site, Palo Alto, California			
FAMILY NAME	**SCIENTIFIC NAME**	**COMMON NAME**	**INDICATOR STATUS**
	Elytrigia pontica ssp. *pontica*	tall wheatgrass	NOL
	Hordeum hystrix	Mediterranean barley	FAC
	Piptatherum miliaceum	smilo grass	NOL
Polygonaceae	*Rumex crispus*	curly dock	FACW-
	Rumex salicifolius	willow dock	OBL
Rosaceae	*Rubus* sp.	blackberry	---
Salicaceae	*Populus fremontii* ssp. *fremontii*	Fremont cottonwood	FACW
	Salix laevigata	red willow	NOL
Typhaceae	*Typha angustifolia*	broad-leaved cattail	OBL

The species are arranged alphabetically by family name for all vascular plants encountered during the plant survey. Plants are also listed alphabetically within each family. In some cases, it was not possible to accurately identify a particular plant to the species level due to the absence of specific anatomic structures required for identification.
NOL = Not on List

APPENDIX B TO H.T. HARVEY & ASSOCIATES BIOLOGICAL RESOURCES SECTION

WILDLIFE SPECIES OF THE MATADERO CREEK FLOOD CONTROL PROJECT AREA

Appendix B. Wildlife species of the Matadero Creek Flood Control project area, Palo Alto, California.

Common Name	Scientific Name	Status	Predicted	Observed
CLASS: AMPHIBIA				
ORDER: CAUDATA (Salamanders)				
FAMILY: AMBYSTOMATIDAE (Mole Salamanders and Relatives)				
California Tiger Salamander	*Ambystoma californiense*	FC, CSSC		x
FAMILY: PLETHODONTIDAE (Lungless Salamanders)				
Ensatina	*Ensatina eschscholtzi*		x	
California Slender Salamander	*Batrachoseps attenuatus*		x	
Arboreal Salamander	*Aneides lugubris*		x	
ORDER: SALIENTIA (Frogs and Toads)				
FAMILY: BUFONIDAE (True Toads)				
Western Toad	*Bufo boreas*			x
FAMILY: HYLIDAE (Treefrogs and Relatives)				
Pacific Treefrog	*Hyla regilla*			x
FAMILY: RANIDAE (True Frogs)				
Bullfrog	*Rana catesbeiana*			x
CLASS: REPTILIA				
ORDER: TESTUDINATA (Turtles)				
FAMILY: EMYDIDAE (Pond and Marsh Turtles)				
Western Pond Turtle	*Clemmys marmorata*	CSSC	x	
ORDER: SQUAMATA (Lizards and Snakes)				
SUBORDER: SAURIA (Lizards)				
FAMILY: IGUANIDAE (Iguanids)				
Western Fence Lizard	*Sceloporus occidentalis*			x
FAMILY: SCINCIDAE (Skinks)				
Western Skink	*Eumeces skiltonianus*			x
FAMILY: ANGUIDAE (Alligator Lizards and Relatives)				
Southern Alligator Lizard	*Elgaria multicarinata*			x
FAMILY: COLUBRIDAE (Colubrids)				
Ringneck Snake	*Diadophis punctatus*		x	
Sharp-tailed Snake	*Contia tenuis*		x	
Racer	*Coluber constrictor*		x	
Gopher Snake	*Pituophis melanoleucus*			x
Common Kingsnake	*Lampropeltis getula*		x	
Common Garter Snake	*Thamnophis sirtalis*		x	
Western Terrestrial Garter Snake	*Thamnophis elegens*		x	
Western Aquatic Garter Snake	*Thamnophis atratus*		x	
Night Snake	*Hypsiglena torquata*		x	
FAMILY: VIPERIDAE (Vipers)				
Western Rattlesnake	*Crotalus viridis*		x	
CLASS: AVES				

Appendix B. Wildlife species of the Matadero Creek Flood Control project area, Palo Alto, California.

Common Name	Scientific Name	Status	Predicted	Observed
ORDER: GAVIIFORMES (Loons)				
ORDER: PODICIPEDIFORMES (Grebes)				
FAMILY: PODICIPEDIDAE (Grebes)				
Pied-billed Grebe	*Podilymbus podiceps*			x
Horned Grebe	*Podiceps auritus*		x	
ORDER: PELECANIFORMES (Tropicbirds, Pelicans, and Relatives)				
FAMILY: PHALACROCORACIDAE (Cormorants)				
Double-crested Cormorant	*Phalacrocorax auritus*	CSSC		x
ORDER: CICONIIFORMES (Herons, Storks, Ibises, and Relatives)				
FAMILY: ARDEIDAE (Herons and Bitterns)				
Great Blue Heron	*Ardea herodias*			x
Great Egret	*Ardea alba*			x
Snowy Egret	*Egretta thula*			x
Green Heron	*Butorides striatus*			x
Black-crowned Night Heron	*Nycticorax nycticorax*			x
FAMILY: CATHARTIDAE (New World Vultures)				
Turkey Vulture	*Cathartes aura*			x
ORDER: ANSERIFORMES (Screamers, Ducks, and Relatives)				
FAMILY: ANATIDAE (Swans, Geese, and Ducks)				
Canada Goose	*Branta canadensis*		x	
Wood Duck	*Aix sponsa*			x
Green-winged Teal	*Anas crecca*			x
Mallard	*Anas platyrhynchos*			x
Northern Pintail	*Anas acuta*		x	
Cinnamon Teal	*Anas cyanoptera*			x
Gadwall	*Anas strepera*			x
Ring-necked Duck	*Aythya collaris*			x
Bufflehead	*Bucephala albeola*			x
Hooded Merganser	*Lophodytes cucullatus*			x
Common Merganser	*Mergus merganser*		x	
Ruddy Duck	*Oxyura jamaicensis*			x
ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)				
FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)				
White-tailed Kite	*Elanus caeruleus*	SP		x
Northern Harrier	*Circus cyaneus*	CSSC		x
Sharp-shinned hawk	*Accipiter striatus*	CSSC	x	
Cooper's Hawk	*Accipiter cooperii*	CSSC		x
Red-shouldered Hawk	*Buteo lineatus*			x
Red-tailed Hawk	*Buteo jamaicensis*			x
Ferruginous Hawk	*Buteo regalis*	CSSC	x	

Appendix B. Wildlife species of the Matadero Creek Flood Control project area, Palo Alto, California.

Common Name	Scientific Name	Status	Predicted	Observed
Golden Eagle	*Aquila chrysaetos*	CSSC, SP		x
FAMILY: FALCONIDAE (Caracaras and Falcons)				
American Kestrel	*Falco sparverius*			x
Merlin	*Falco columbarius*	CSSC	x	
American Peregrine Falcon	*Falco peregrinus anatum*	FE, SE, SP	x	
Prairie Falcon	*Falco mexicanus*	CSSC		x
ORDER: GALLIFORMES (Megapodes, Currassows, Pheasants, and Relatives)				
FAMILY: PHASIANIDAE (Old World Quails, Pheasants, and Relatives)				
Ring-necked Pheasant	*Phasianus colchicus*			x
Wild Turkey	*Meleagris gallopavo*			x
FAMILY: ODONTOPHORIDAE (New World Quails)				
California Quail	*Callipepla californica*			x
ORDER: GRUIFORMES (Cranes, Rails, and Relatives)				
FAMILY: RALLIDAE (Rails, Gallinules, and Coots)				
Common Moorhen	*Gallinula chloropus*			x
American Coot	*Fulica americana*			x
ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and Relatives)				
FAMILY: CHARADRIIDAE (Plovers and Relatives)				
Semipalmated Plover	*Charadrius semipalmatus*			x
Killdeer	*Charadrius vociferus*			x
FAMILY: RECURVIROSTRIDAE (Avocets and Stilts)				
Black-necked Stilt	*Himantopus mexicanus*			x
American Avocet	*Recurvirostra americana*		x	
FAMILY: SCOLOPACIDAE (Sandpipers and Relatives)				
Long-billed Curlew	*Numenius americanus*	CSSC		x
Greater Yellowlegs	*Tringa melanoleuca*		x	
Lesser Yellowlegs	*Tringa flavipes*			x
Western Sandpiper	*Calidris mauri*			x
Least Sandpiper	*Calidris minutilla*			x
Spotted Sandpiper	*Actitis macularia*		x	
Common Snipe	*Gallinago gallinago*			x
FAMILY: LARIDAE (Gulls and Terns)				
Ring-billed Gull	*Larus delawarensis*		x	
California Gull	*Larus californicus*	CSSC		x
Herring Gull	*Larus argentatus*		x	
Caspian Tern	*Sterna caspia*			x
Forster's Tern	*Sterna forsteri*			x
ORDER: COLUMBIFORMES (Pigeons and Doves)				
FAMILY: COLUMBIDAE (Pigeons and Doves)				
Rock Dove	*Columba livia*			x

Appendix B. Wildlife species of the Matadero Creek Flood Control project area, Palo Alto, California.

Common Name	Scientific Name	Status	Predicted	Observed
Band-tailed Pigeon	*Columba fasciata*			x
Mourning Dove	*Zenaida macroura*			x
ORDER: STRIGIFORMES (Owls)				
FAMILY: TYTONIDAE (Barn Owls)				
Barn Owl	*Tyto alba*			x
FAMILY: STRIGIDAE (Typical Owls)				
Western Screech Owl	*Otus kennicottii*		x	
Great Horned Owl	*Bubo virginianus*			x
Burrowing Owl	*Athene cunicularia*	CSSC	x	
ORDER: APODIFORMES (Swifts and Hummingbirds)				
FAMILY: APODIDAE (Swifts)				
Vaux's Swift	*Chaetura vauxi*	CSSC	x	
White-throated Swift	*Aeronautes saxatalis*		x	
FAMILY: TROCHILIDAE (Hummingbirds)				
Anna's Hummingbird	*Calypte anna*			x
Rufous Hummingbird	*Selasphorus rufus*			x
Allen's Hummingbird	*Selasphorus sasin*		x	
ORDER: CORACIIFORMES (Kingfishers and Relatives)				
FAMILY: ALCEDINIDAE (Kingfishers)				
Belted Kingfisher	*Ceryle alcyon*			x
ORDER: PICIFORMES (Woodpeckers and Relatives)				
FAMILY: PICIDAE (Woodpeckers)				
Acorn Woodpecker	*Melanerpes formicivorous*			x
Red-breasted Sapsucker	*Sphyrapicus ruber*			x
Nuttall's Woodpecker	*Picoides nuttallii*			x
Downy Woodpecker	*Picoides pubescens*			x
Northern Flicker	*Colaptes auratus*			x
ORDER: PASSERIFORMES (Perching Birds)				
FAMILY: TYRANNIDAE (Tyrant Flycatchers)				
Western Wood-Pewee	*Contopus sordidulus*		x	
Willow Flycatcher	*Empidonax traillii*	SE		
Pacific-slope Flycatcher	*Empidonax difficilis*			x
Black Phoebe	*Sayornis nigricans*			x
Say's Phoebe	*Sayornis saya*			x
Western Kingbird	*Tyrannus verticalis*			x
FAMILY: LANIIDAE (Shrikes)				
Loggerhead Shrike	*Lanius ludovicianus*	CSSC		x
FAMILY: VIREONIDAE (Typical Vireos)				
Hutton's Vireo	*Vireo huttoni*		x	
FAMILY: CORVIDAE (Jays, Magpies, and Crows)				

Appendix B. Wildlife species of the Matadero Creek Flood Control project area, Palo Alto, California.

Common Name	Scientific Name	Status	Predicted	Observed
Steller's Jay	*Cyanocitta stelleri*			x
Western Scrub-jay	*Aphelocoma californica*			x
Yellow-billed Magpie	*Pica nuttalli*			x
American Crow	*Corvus brachyrhynchos*			x
Common Raven	*Corvus corax*			x
FAMILY: MONARCHIDAE (Monarch Flycatchers)				
Western Bluebird	*Sialia mexicana*			x
Swainson's Thrush	*Catharus ustulatus*		x	
Hermit Thrush	*Catharus guttatus*			x
American Robin	*Turdus migratorius*			x
FAMILY: ALAUDIDAE (Larks)				
California Horned Lark	*Eremophila alpestris actia*	CSSC	x	
FAMILY: HIRUNDINIDAE (Swallows)				
Tree Swallow	*Tachycineta bicolor*			x
Violet-green Swallow	*Tachycineta thalassina*			x
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*			x
Barn Swallow	*Hirundo rustica*			x
Cliff Swallow	*Petrochelidon pyrrhonota*			x
FAMILY: PARIDAE (Titmice)				
Chestnut-backed Chickadee	*Poecile rufescens*			x
Oak Titmouse	*Baeolophus inornatus*			x
FAMILY: AEGITHALIDAE (Bushtit)				
Bushtit	*Psaltriparus minimus*			x
FAMILY: SITTIDAE (Nuthatches)				
White-breasted Nuthatch	*Sitta carolinensis*			x
FAMILY: CERTHIIDAE (Creepers)				
Brown Creeper	*Certhia americana*		x	
FAMILY: TROGLODYTIDAE (Wrens)				
Bewick's Wren	*Thryomanes bewickii*			x
House Wren	*Troglodytes aedon*			x
FAMILY: REGULIDAE (Kinglets)				
Ruby-crowned Kinglet	*Regulus calendula*			x
FAMILY: MIMIDAE (Mockingbirds and Thrashers)				
Northern Mockingbird	*Mimus polyglottos*			x
California Thrasher	*Toxostoma redivivum*			x
FAMILY: STURNIDAE (Starlings)				
European Starling	*Sturnus vulgaris*			x
FAMILY: MOTACILLIDAE (Wagtails and Pipits)				
American Pipit	*Anthus rubescens*			x
FAMILY: BOMBYCILLIDAE (Waxwings)				

Appendix B. Wildlife species of the Matadero Creek Flood Control project area, Palo Alto, California.

Common Name	Scientific Name	Status	Predicted	Observed
Cedar Waxwing	*Bombycilla cedrorum*			x
FAMILY: PARULIDAE (Wood Warblers)				
Orange-crowned Warbler	*Vermivora celata*			x
Nashville Warbler	*Vermivora ruficapilla*			x
Yellow Warbler	*Dendroica petechia*	CSSC		x
Yellow-rumped Warbler	*Dendroica coronata*			x
Townsend's Warbler	*Dendroica townsendi*		x	
Common Yellowthroat	*Geothlypis trichas*			x
Wilson's Warbler	*Wilsonia pusilla*			x
FAMILY: EMBERIZIDAE (Emberizines)				
Spotted Towhee	*Pipilo maculatus*			x
California Towhee	*Pipilo crissalis*			x
Rufous-crowned Sparrow	*Aimophila ruficeps*			x
Lark Sparrow	*Chondestes grammacus*			x
Savannah Sparrow	*Passerculus sandwichensis*			x
Grasshopper Sparrow	*Ammodramus savannarum*			x
Fox Sparrow	*Passerella iliaca*			x
Song Sparrow	*Melospiza melodia*			x
White-crowned Sparrow	*Zonotrichia leucophrys*			x
Golden-crowned Sparrow	*Zonotrichia atricapilla*			x
Lincoln's Sparrow	*Melospiza lincolnii*			x
Dark-eyed Junco	*Junco hyemalis*			x
FAMILY: CARDINALIDAE (Cardinals, Grosbeaks, and Relatives)				
Lazuli Bunting	*Passerina amoena*			x
Black-headed Grosbeak	*Pheucticus melanocephalus*		x	
FAMILY: ICTERIDAE (Icterines)				
Red-winged Blackbird	*Agelaius phoeniceus*			x
Tricolored Blackbird	*Agelaius tricolor*	CSSC		x
Brewer's Blackbird	*Euphagus cyanocephalus*			x
Western Meadowlark	*Sturnella neglecta*			x
Brown-headed Cowbird	*Molothrus ater*			x
Bullock's Oriole	*Icterus bullockii*			x
FAMILY: FRINGILLIDAE (Finches)				
Purple Finch	*Carpodacus purpureus*		x	
House Finch	*Carpodacus mexicanus*			x
Pine Siskin	*Carduelis pinus*		x	
Lesser Goldfinch	*Carduelis psaltria*			x
American Goldfinch	*Carduelis tristis*			x
FAMILY: PASSERIDAE (Weaver Finches)				
House Sparrow	*Passer domesticus*			x

Appendix B. Wildlife species of the Matadero Creek Flood Control project area, Palo Alto, California.

Common Name	Scientific Name	Status	Predicted	Observed
CLASS: MAMMALIA				
ORDER: MARSUPIALIA (Opossums, Kangaroos, and Relatives)				
FAMILY: DIDELPHIDAE (Opossums)				
Virginia Opossum	*Didelphis virginiana*		x	
ORDER: INSECTIVORA (Shrews and Moles)				
FAMILY: SORICIDAE (Shrews)				
Vagrant Shrew	*Sorex vagrans*		x	
Ornate Shrew	*Sorex ornatus*		x	
Trowbridge's Shrew	*Sorex trowbridgii*		x	
FAMILY: TALPIDAE (Moles)				
Broad-footed Mole	*Scapanus latimanus*			x
ORDER: CHIROPTERA (Bats)				
FAMILY: VESPERTILIONIDAE (Vespertilionid Bats)				
Yuma Myotis	*Myotis yumanensis*		x	
Long-eared Myotis	*Myotis evotis*		x	
California Myotis	*Myotis californicus*		x	
Western Pipistrelle	*Pipistrellus hesperus*		x	
Big Brown Bat	*Eptesicus fuscus*		x	
Hoary Bat	*Lasiurus cinereus*		x	
Townsend's Big-eared Bat	*Corynorhinus townsendii townsendii*	CSSC	x	
FAMILY: ANTROZOIDAE (Pallid Bat)				
Pallid Bat	*Antrozous pallidus*	CSSC	x	
FAMILY: MOLOSSIDAE (Free-tailed Bat)				
Brazilian Free-tailed Bat	*Tadarida brasiliensis*		x	
Western Mastiff Bat	*Eumops perotis*	CSSC	x	
ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)				
FAMILY: LEPORIDAE (Rabbits and Hares)				
Brush Rabbit	*Sylvilagus bachmani*		x	
Desert Cottontail	*Sylvilagus audubonii*		x	
Black-tailed Hare	*Lepus californicus*			x
ORDER: RODENTIA (Squirrels, Rats, Mice, and Relatives)				
FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)				
California Ground Squirrel	*Spermophilus beecheyi*			x
Gray Squirrel	*Sciurus carolinensis*		x	
Western Gray Squirrel	*Sciurus griseus*		x	
Fox Squirrel	*Sciurus niger*		x	
FAMILY: GEOMYIDAE (Pocket Gophers)				
Botta's Pocket Gopher	*Thomomys bottae*			x
FAMILY: CRICETIDAE (Deer Mice, Voles, and Relatives)				

Appendix B. Wildlife species of the Matadero Creek Flood Control project area, Palo Alto, California.

Common Name	Scientific Name	Status	Predicted	Observed
Western Harvest Mouse	*Reithrodontomys megalotis*		x	
California Mouse	*Peromyscus californicus*		x	
Deer Mouse	*Peromyscus maniculatus*		x	
San Fransisco Dusky-footed Woodrat	*Neotoma fuscipes annectens*	CSSC		x
California Vole	*Microtus californicus*			x
Muskrat	*Ondatra zibethicus*			x
FAMILY: MURIDAE (Old World Rats and Mice)				
Black Rat	*Rattus rattus*		x	
Norway Rat	*Rattus norvegicus*		x	
House Mouse	*Mus musculus*		x	
ORDER: CARNIVORA (Carnivores)				
FAMILY: CANIDAE (Foxes, Wolves, and Relatives)				
Coyote	*Canis latrans*			x
Red Fox	*Vulpes vulpes*		x	
Gray Fox	*Urocyon cinereoargenteus*		x	
FAMILY: PROCYONIDAE (Raccoons and Relatives)				
Ringtail	*Bassariscus astutus*	SP	x	
Raccoon	*Procyon lotor*			x
FAMILY: MUSTELIDAE (Weasels, Badgers, and Relatives)				
Long-tailed Weasel	*Mustela frenata*		x	
Badger	*Taxidea taxus*		x	
Western Spotted Skunk	*Spilogale gracilis [=putorius]*		x	
Striped Skunk	*Mephitis mephitis*		x	
FAMILY: FELIDAE (Cats)				
Bobcat	*Lynx rufus*		x	
ORDER: PERISSODACTYLA (Horses, Tapirs, and Relatives)				
ORDER: ARTIODACTYLA				
FAMILY: SUIDAE (Pigs)				
Wild Pig	*Sus scrofa*		x	
FAMILY: CERVIDAE (Deer, Elk, and Relatives)				
Black-tailed Deer	*Odocoileus hemionus columbianus*			x

SPECIAL STATUS SPECIES CODE DESIGNATIONS

FE = Federally listed Endangered
FT = Federally listed Threatened
SE = State listed Endangered
ST = State listed Threatened
FPE = Federally Proposed Endangered
FPT = Federally Proposed Threatened
SCE = State Candidate Endangered
SCT = State Candidate Threatened
FC = Federal Candidate. Sufficient biological information to support a proposal to list the species as Endangered or Threatened
CSSC = California Species of Special Concern
SP = State Protected Species

APPENDIX C TO H.T. HARVEY & ASSOCIATES BIOLOGICAL RESOURCES SECTION

REGULATIONS OVERVIEWS FOR THE MATADERO CREEK FLOOD CONTROL PROJECT AREA

Special-Status Species Regulations Overview. Federal and state endangered species legislation gives several plant and animal species known to occur in the vicinity of the project site special status. In addition, state resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents, have identified as sensitive some species occurring in the vicinity of the project site. Such species are referred to collectively as "species of special status" and include: plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA), animals listed as "fully protected" under the California Fish and Game Code, animals designated as "Species of Special Concern" by CDFG, and plants listed as rare or endangered in the *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 1994).

Federal Endangered Species Act provisions protect federally-listed threatened and endangered species and their habitats from unlawful take. "Take" under FESA includes activities such as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The USFWS's regulations define harm to mean "an act which actually kills or injures wildlife." Such an act "may include "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR § 17.3). Activities that may result in "take" of individuals are regulated by the USFWS. The USFWS produced an updated list of candidate species September 19, 1997 (USFWS 1997; 50 CFR Part 17). Candidate species are not afforded any legal protection under FESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

Provisions of CESA protect state-listed threatened and endangered species. CDFG regulates activities that may result in "take" of individuals (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code. The CDFG, however, has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification ..." Additionally, the California Fish and Game Code contains lists of vertebrate species designated as "fully protected" (Cal. Fish & Game Code §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed without a permit.

The CDFG has also produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists." Species on these lists either are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review, but do not have statutory protection.

Vascular plants listed as rare or endangered by the California Native Plant Society (Skinner and Pavlik 1994), but which have no designated status under state endangered species legislation, are defined as follows:

- List 1B. Plants rare, threatened, or endangered in California and elsewhere.

- List 2. Plants rare, threatened, or endangered in California, but more numerous elsewhere.
- List 3. Plants about which we need more information - A review list.
- List 4. Plants of limited distribution - A watch list.

Waters of the United States Regulations Overview. Areas meeting the regulatory definition of "Waters of the U.S." (jurisdictional waters) are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U.S.," tributaries of waters otherwise defined as "Waters of the U. S.," the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3). Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987).

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The State Water Resources Control Board is the state agency (together with the Regional Water Quality Control Boards [RWQCB]) charged with implementing water quality certification in California.

Habitats Regulated Under Fish and Game Code Section 1600 *et seq.* Regulations Overview. Activities that result in the diversion or obstruction of the natural flow of a stream, or substantially change its bed, channel or bank, or utilize any materials (including vegetation) from the streambed require that the project applicant enter into a Streambed Alteration Agreement with CDFG, under sections 1600-1603 of the California Fish and Game Code. The CDFG potentially extends the definition of stream to include "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams mapped on USGS quads, and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife" (CDFG 1994).

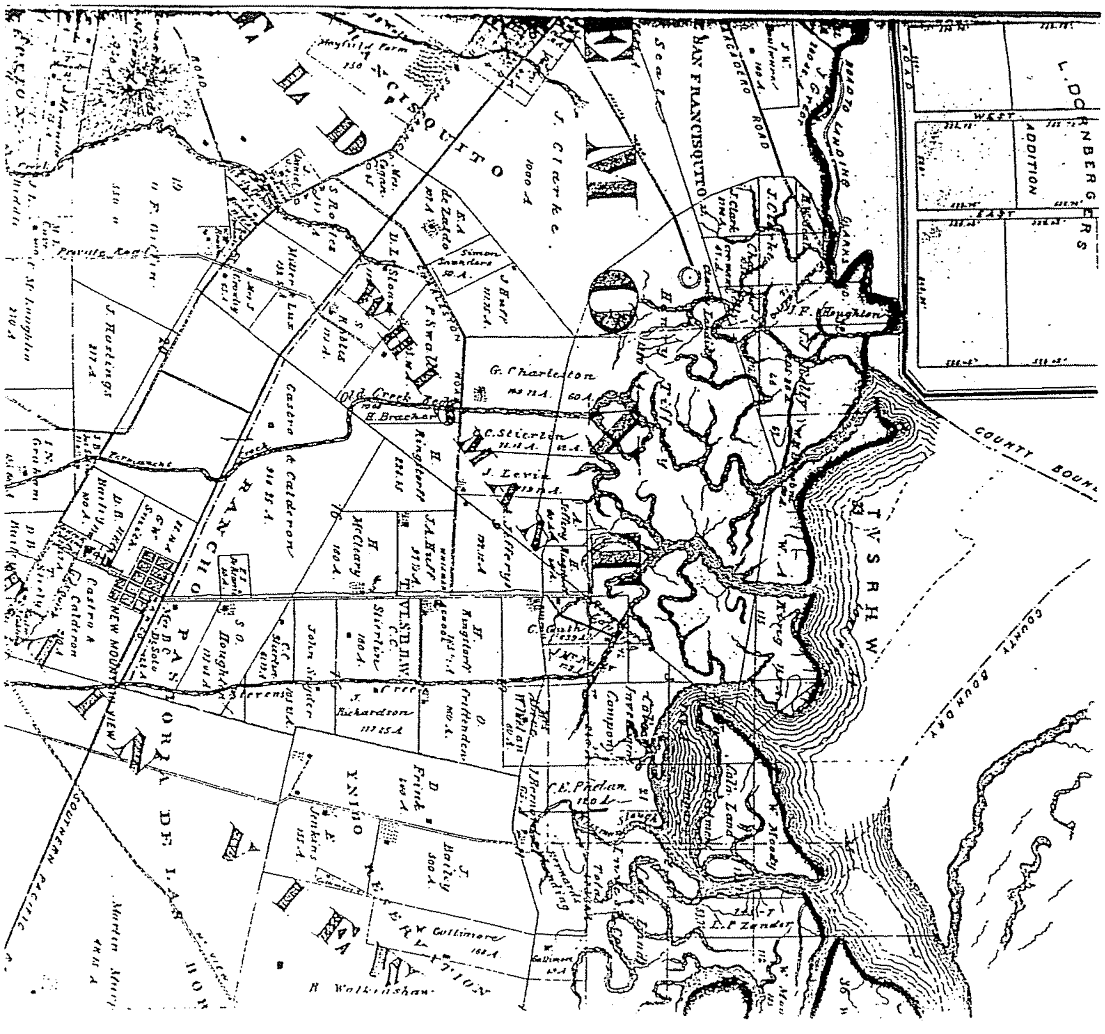
PS. As Matadero and Barron Creeks pass through the Stanford industrial park they are exposed to residual groundwater contamination from a super fund site. The beneficial instream uses of the streams has been impaired, especially, I have observed, Matadero's. It would be reassuring to have updated water quality data as to this past contamination dilution. The recreation use in Palo Alto parks would benefit from a clean bill of health for these streams. I-7

The ducks seem to make good use of the Barron Creek sediment basin pond so it was probably just downstream that water quality problems surfaced. The super fund people haven't had meetings in over a decade but it was unclear if they had cleaned up the problem or just run out of funds. If this is not a bona fide watershed issue for you, I will understand, but it has concerned me for the creek.

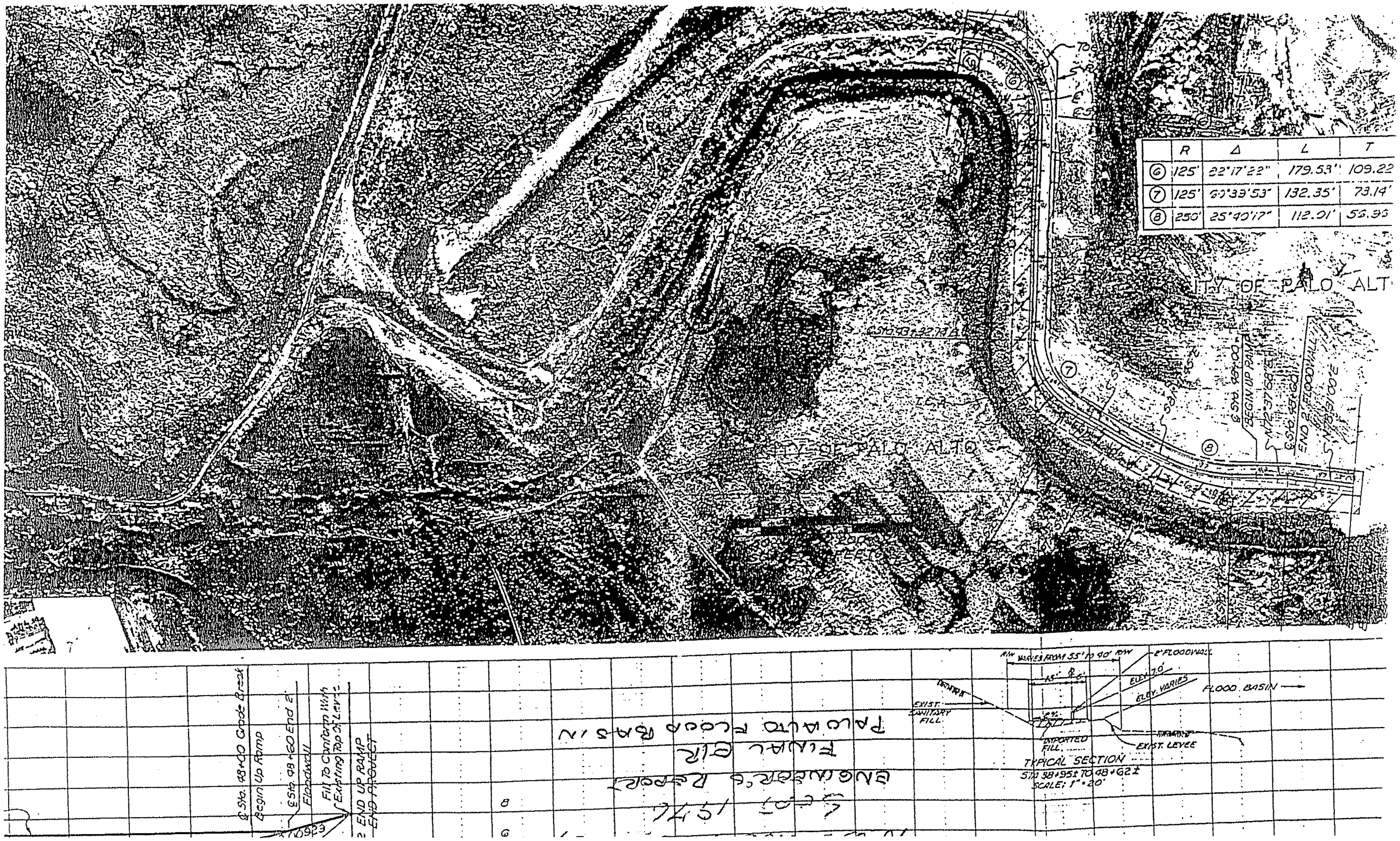
The only other water quality problem upstream on Matadero was just below the Caltrans facility adjacent to #280, however didn't test below goats on Old Page Mill, or electricity facility at juncture with Old and New Page Mill Roads. Is it necessary for there to be established a baseline of water quality before the stream enters the project area? It would seem a good idea in my mind.

The upper watershed of Matadero Creek is neglected in this EIR except for the discussion of historic flow data. I find this is a deficiency. It is important to know what land uses and what soil types are found. The two major branches of Matadero come from different communities with different land use criteria. As build out occurs, what can be expected in speed and quality of runoff? In the present context of the watershed management initiative one would hope that an especially careful treatment would have been undertaken of this watershed. It would also be important to know what were the historic flora and fauna and what creatures and vegetation are presently in evidence. The erosion and non-point pollution contributions of the horse and cattle grazing is a start. What are the animals per acre pastured in this watershed? What is the County plan?

The emphasis on biological resources in this EIR was the Baylands but as the record had been so thorough here in past EIR's this was only valuable to show what species were no long observed on November 4, 1999 by Dr. Steve Rottenborn. .Pages 17 through 24 of his comments in H.T. Harvy study are excellent!



Sept 1976
ENGINEER'S REPORT
FINAL EIR
PALO ALTO FLOOD BASIN



	R	Δ	L	T
⑥	125'	82°17'22"	179.53'	109.22
⑦	125'	60°39'53"	132.35'	73.14'
⑧	250'	25°40'17"	112.01'	56.95

TYPICAL SECTION
STA 98+95± TO 98+62±
SCALE: 1" = 20'

TO: Santa Clara Valley Water District

SUBJECT: Comments on "Draft Environmental Impact Report, Matadero/Barron Creeks
Long-Term Remediation Project"

Design mistakes made by Santa Clara Valley Water District (SCVWD) during modification of the Matadero Creek channel in the late 1980's have resulted in the need for additional channel work. The original designed called for up to 600 cubic feet per second of floodwater to be diverted to Matadero Creek from the Barron Creek drainage via two tunnels. During a 100-year flood, this diverted water from Barron Creek could make up 20% of the flow in Matadero Creek. To accommodate the 100-year flood in Matadero Creek and the additional flow diverted from Barron Creek, the Matadero Creek channel was enlarged, bridges were rebuilt and walls were added to the channel. After construction in 1989 it was found that the reconstructed channel could not carry the design discharge.

The current preferred design to increase the capacity of lower Matadero Creek and thus fix mistakes made in the late 1980's requires raising the walls on Matadero Creek from Alma Street to below Greer Road. The Louis Street bridge must also be rebuilt. At Greer Road the walls of the bridge will be raised from 3.8 to 6.7 feet! People who are driving or walking over the bridge will not be able to see the creek at all. Proposed wall height at the Louis Road bridge is 5.1 feet, up from the present 2.9 feet. At Waverley Street the wall height would be raised to 3.7 feet from 2.2 feet. In each case, in times of flooding, water could actually be held several feet above the road surface and the level of the surrounding ground. This also means that if one of the walls should fail for any reason, water would flood neighborhoods where flood insurance will not be required. Millions and millions of dollars in damage could be the result. When officials of the SCVWD were asked (at the Nov. 20, 2001, public meeting about the project) just who would pay in case a wall failed and flooding resulted, we were told that it would be an act of God and lawyers would have to be consulted. When asked at that same meeting to consider enlarging the Matadero Creek channel by changing its present trapezoidal channel to a U-shaped channel we were told that such modification would have only limited affect. I was surprised, therefore, to find text on page 116 of the EIS stating that a U-shaped channel would eliminate the need to raise the walls at all upstream of Ross Road!

The amount of money designated to raise the walls along the creek ($2.7 million, page 1-9) is equivalent to approximately the cost of three houses in Palo Alto and is far less than the potential cost from flooding if a wall should fail for any reason (earthquake, poor construction, damage by impact or other cause) during a large flood. In other words, this is the cheap alternative. Had the project been proposed from the beginning with the indicated wall heights, it would never have been approved. To shift the burden of potential flooding and damage from Barron Creek to Matadero Creek and the residents adjacent to it is unconscionable. No structure built by humans is perfect. All such structures are subject to failure at some point in time and yet no assessment of the possible safety and financial consequences are included in the report. It is worth remembering that the designers of the Titanic thought it couldn't sink.

The only negative impact listed in the Draft EIR with regard to the raised floodwalls is considered to be a visual impact. There is no mention of the obvious negative financial impact that the significantly higher floodwalls will have on nearby properties. For example, would a potential homebuyer pay the same amount for otherwise identical properties if one of them is adjacent to a 6.7-foot-high concrete wall enclosing flood water at a higher level than the ground floor of the house? The draft EIR is clearly inadequate because it does not consider this impact.

The mistake in the initial design coupled with evasive statements made by SCVWD personnel at the public meeting on Nov. 20 leave me with no confidence that the Water District has chosen the best alternative to fix its error. The current preferred alternative will only be cheapest for the Water District. Palo Alto residents who live near Matadero Creek, and who must bear the flood protection burden for BOTH Matadero and Barron Creeks, will find that this cheapest alternative is really the most expensive. The Water District plan would place a direct financial burden on homeowners who live near Matadero Creek by reducing the value of their homes as a result of the significant increase in the heights of floodwalls.

I note here that my husband's written comment prior to the channel modification in the 1980's urged SCVWD to be sure of their hydraulic and hydrologic calculations because of the burden placed on lower portions of Matadero Creek. Apparently his comments were not heard. Now SCVWD will "remediate" its mistake. I am concerned that my comments will also be ignored with potential financial and flooding consequences for residents adjacent to Matadero Creek.

As written, the Draft EIR contains two fatal flaws:

1) **The failure to evaluate impacts of a possible break in a raised floodwall, and**
2) **The failure to assess the negative financial impact of the walls on nearby property owners.**

The draft document is clearly inadequate and approval of it must be deferred until the impacts on property values and the safety consequences are properly assessed, included in the EIR, and widely disseminated for public comment.

SCVWD clearly needs to find an alternative that has fewer negative consequences for homeowners near Matadero Creek. Failure to do so could leave the Water District open to lawsuits as property owners sue to obtain financial remuneration for the lost value to their homes.

Julie Nolan
2935 Waverley St.
Palo Alto CA

Melissa Dargis

From: Chuck Bradley [SMTP:cwbradly@postoffice.pacbell.net]
Sent: Monday, December 03, 2001 1:38 PM
To: MeliDarg@scvwd.dst.ca.us
Subject: Matadero/Barron Creek Remediation Project

Ms. Melissa Dargis
Santa Clara Valley Water District
Matadero/Barron Creeks Long-Term Remediation
Response to Public Hearing/ Environmental Impact Report

To SCVWD Board of Directors:

Are the proposed Matadero Creek floodwalls really necessary?

As you know, the District declared the February 1998 rainfall as the 100-year flood event that the Matadero Creek was designed for. During the heavy rainfall, the District manually controlled the gates in the Barron Park Diversion Facility—where more runoff was diverted into the Matadero Creek to avoid Barron Creek overload! At the runoff peak there was four feet of freeboard at the Waverley Street bridge, and there was never any threat of flooding!

Therefore, without any design corrections, both creeks have withstood the one-percent flood test by adjusting the gates in the Diversion Facility. The District later declared that this manual operation was successful.

In addition, the District's other proposed remedies would reduce any flood risk even further: creating a new bypass channel downstream of Hwy. 101, and raising the Louis Road bridge and enlarging the channel underneath.

The District/ FEMA, however, has stated that it doesn't want to rely on human intervention during times of heavy rainfall. But why not? That kind of rationale would suggest that we should never rely on traffic cops, firefighters or utilities emergency crews.

If the current creek channels have proven to work, why wouldn't the District continue with same Diversion Facility procedure in the future? The millions saved from the new floodwall construction would cover the cost for emergency "rainfall" crews for the next two millenniums!

Sincerely,

Chuck Bradley
2957 Waverley Street
Palo Alto, CA 94306
(650) 856-6430

Melissa Dargis

From: Julie Nolan [SMTP:nolanhome@earthlink.net]
Sent: Monday, December 03, 2001 9:41 PM
To: lindah@scvwd.dst.ca.us
Cc: Chuck Bradley; Brian Reid; Midtown Resident's Association; melidarg@scvwd.dst.ca.us; Bruce Anderson
Subject: Comments on Matadero/Barron Creeks EIS

(Text also attached as a Word file)

TO: Santa Clara Valley Water District

SUBJECT: Comments on "Draft Environmental Impact Report, Matadero/Barron Creeks Long-Term Remediation Project"

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Julie Nolan
2935 Waverley St.
Palo Alto CA

Comments.doc

Melissa Dargis

From: Brian Reid [SMTP:brian@reid.org]
Sent: Tuesday, December 04, 2001 3:47 PM
To: lindah@scvwd.dst.ca.us
Cc: nolanhome@earthlink.net; Chuck Bradley; Brian Reid; Midtown Resident's Association; melidarg@scvwd.dst.ca.us; Bruce Anderson
Subject: Comments on Matadero/Barron Creeks EIS

My comments are very brief.

My house at 2960 Waverley St has never been in a flood zone. It has been on high ground next to Matadero Creek for 77 years. Over time, the creek has become a canal, and then had the canal walls enlarged.

The proposed flood remediation plan will dramatically damage the quality of my home in order to increase the quality of somebody else's home. In order to give homeowners in another neighborhood the ability to spend less money on flood insurance, my house will be turned into a basement grotto by erecting high concrete walls to block my view.

If these walls are erected, the quality of my life will be reduced and the value of my property will be reduced. This is a major impact on the environment—my own environment, the one I live in—and it is not addressed in the EIR.

It is absolutely wrong for government to damage one home in order to reduce the operating expense of another. I would prefer that these walls not be built, but, if they are built, I would expect to be reimbursed for the amount of money by which the value of my home is reduced, and for the flood insurance that I will need to buy to protect myself against failure of these walls.

Brian Reid
2960 Waverley St
Palo Alto, CA 94306
650 856 3832
brian@reid.org

Melissa Dargis

From: Marshmama@aol.com [SMTP:Marshmama@aol.com]
Sent: Tuesday, December 04, 2001 4:47 PM
To: melidarg@scvwd.dst.ca.us
Subject: Matadero/Barron Creek Remediation EIR

e-mail contains attachment – (in text) but it is printed & attached, as well

December 4, 2001

Melissa Dargis
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Dear Ms. Dargis:

I am writing to comment on the EIR for the Matadero/Barron Creeks Long Term Remediation Project. I regret that I was unable to attend the meeting you held a couple of weeks ago at the Acterra offices, but thank you for inviting me to it.

I remain concerned about the work proposed downstream of Highway 101. The 80' wide hard bottom bypass channel will necessitate removal of a huge amount of both native and non-native riparian habitat. The bypass is supposed to accommodate 1400 cfs of flow during the 100 year event, but if the flood basin is at or near capacity, the bypass will essentially be storage only.

The current riparian lowlands between the Palo Alto Municipal Services Center and Matadero Creek channel proper can also provide overflow storage while continuing to provide great refugia for many species of birds. Since there are significant lowlands all around the flood basin, including the Renzel wetlands, the old Mayfield Slough remnant, and others, perhaps there is a simpler solution which might entail large high elevation flow-through culverts to allow storage in those areas until the flood basin is able to discharge.

The Matadero Creek riparian area is particularly important because the rest of the baylands are basically saltmarsh or fresh marsh. If there are major losses of riparian habitat in this location, we could see significant losses of species diversity.

I stepped off what I thought was 80' from the Municipal Services Center (MSC) fence toward Matadero Creek, and only 50-60' feet of the original riparian corridor between the creek and the MSC would remain. If, as part of this project, non-native species located in the immediate vicinity of the creek are also to be removed, this could be devastating in the short term and potentially have long term impacts on some species. Use of herbicides as described in the EIR may have harmful effects on native plant species and residue might also impact wildlife. Manual removal should be required if there is to be plant removal. In any case, that plant removal should not take place until revegetation has occurred in areas designated for mitigation.

I attempted to find in the EIR an aerial photo of the entire site downstream of 101, so that the impacts could be really assessed, but so far I have not found anything but drawings. In the meeting a couple of years ago, there was talk of building a major 15' access road for maintenance. I could not find reference to it or any depiction of it in this EIR. I hope that means that said road has been deleted from the project. I believe it will have major adverse impact by providing dry access for red fox and other predators and by its direct impact on the wetlands through which it would have to run.

I know that in dealing with FEMA rules, some rules which govern the rest of the country may apply here, even though our weather conditions are quite different. While you have to acknowledge these rules and attempt to deal with them in order to remove large areas from the flood maps, I hope you will make every attempt to persuade FEMA that some projects may just be boondoggles here in California. This Matadero bypass may be one of them. Please be sure that it is a realistic project for a realistic problem before tearing apart perhaps the largest riparian habitat downstream of Highway 101.

Thank you for considering this comments.

Sincerely,

Emily M. Renzel, Coordinator
Baylands Conservation Committee
1056 Forest Avenue
Palo Alto, CA 94301

Matadero/Barron Creeks Remediation Project Issues Summary

May 22, 2002

A Brief History

The projects completed in 1997 were intended to provide 100-year flood protection to all properties influenced by riverine flooding along Matadero and Barron Creeks.

However, due to numerous errors in the hydraulic analyses, the completed project provided increased flood protection, but did not meet current FEMA or District freeboard standards.

The primary objective of the current remediation project is to provide a level of flood protection along Matadero and Barron Creeks that meets District and FEMA standards. Each creek must convey the one-percent discharge with adequate freeboard.

The proposed project is preferred because it provides one-percent flood protection for the least overall capital cost and environmental impact.

An additional project objective is to obtain a letter of map revision from FEMA to remove a substantial number of properties upstream of Alma Street / Central Expressway from the Special Flood Hazard Areas that are shown on the Flood Insurance Rate Maps. [Downstream properties still must carry flood insurance because of continuing threats of flooding from both the Bay and San Francisquito Creek.]

Our Feelings on This Issue

The Santa Clara Valley Water District made the mistakes—big ones.

The result of these mistakes is INCREASED risk of flooding in the Midtown neighborhood.

The diversion of Barron Creek and improvements to the channels and bridges upstream have so increased the flow rate and discharge into Matadero Creek that it currently does not have adequate capacity to both convey the 100-year flood and meet the freeboard requirements.

Our homes and streets were torn up and people were inconvenienced with the promise that EVERYONE along both Barron and Matadero Creeks would have flood protection.

The District (with the City's allowance, apparently) violated Sections 16.52.030(a) and (e) of the Palo Alto Municipal Code. The Code regulates flood hazards by:

(a) Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which *result in damaging increases in* erosion or in *flood heights or velocities*.

(e) Preventing or *regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.*

Now we in Midtown are the ones who must suffer the consequences of these errors.

The price to us is visual blight, safety hazards, and a reduction in property values, not to mention more construction, road closures and inconvenience.

The proposed project as it stands is not acceptable to us nor should it be to the City of Palo Alto.

So that's why we're here—to work out a better solution.

What We Want

While we believe that the best solution by far is to do *nothing* until there is money available to do the right thing, we also recognize there are promises to be kept.

Promises made by the District to Barron Park, and to those who were told they'd be relieved of flood insurance requirements.

But these promises should not be fulfilled solely at the expense of those on lower Matadero.

The Alternatives

One of our major objections to the proposed project is that because the work already done has so increased both the amount of water and the flow rate of Matadero, virtually all of the alternatives still require walls from 5-7 feet high downstream of Louis, even with the Downstream Bypass able to convey half of the 1% flow!

We still believe it makes no sense to solve the problem solely at the creek's terminus; you *must* look at retaining or at least slowing some of the flow upstream. Otherwise, we'll be revisiting this same issue in another 15 years. In addition, we really don't know the impact of future projects–San Francisquito Creek will need to be brought up to FEMA requirements, the storm drains will be improved and made more efficient, and there is talk of a "southern connection" from the Dumbarton to 101 under, if not through, the Baylands.

That said, we looked at the alternatives and combinations thereof both with and without regard to cost. As we have previously said, we want the correct—not the cheapest—solution for the long-term.

Our analysis assumes that the Downstream Bypass next to the Municipal Services Center is a must-do. Of the alternatives presented to us (see detailed analysis on following pages), our preferences in order are:

- **Underground Bypass Between Alma and the Flood Basin**
  We believe the Underground Bypass (a box culvert to convey flows underground via Loma Verde), although temporarily disruptive, provides the best long-term flood protection to all neighborhoods while still retaining our quality of life. Ideally, it would be combined with the City of Palo Alto's storm drain upgrade to ensure streets would be torn up only once.

- **Upstream Retention Basin**
  A 600 acre-foot reservoir on Matadero Creek between 1-280 and Foothill Expressway would negate the need for any raised floodwalls.

  A 130 acre-foot detention basin on a 20-acre site near Page Mill and Foothill Expressway would reduce the 1% discharge in Matadero Creek by 600 cfs, allowing full diversion from Barron Creek and lowering floodwall requirements.

- **Matadero Channel (Full U-Frame) Enlargement**
  No headwall or floodwall modifications would be needed upstream of Ross Road. This alternative also reduces flood and headwall heights on Louis (and possibly Greer with additional mitigation) to an acceptable level.

- **Remove Greer Road Bridge (while still raising and replacing the Louis Road Bridge)**
  Either eliminates or reduces the need for raising flood and headwalls because the Greer Bridge would no longer act as a dam.

- **Seasonal Barriers**
  One advantage of using removable barriers is that it gives everyone time to see what will happen over the next few years without erecting anything permanent that can't be undone should a better solution come along.

  Ideally, floodwalls would be put into place from late November to mid-March and headwalls placed only during an emergency.

  Yet another option is to raise only the floodwalls and do nothing to the headwalls. Instead, during a critical period, sandbag (or place temporary barriers) across the street from one floodwall to the other.

Results of SCVWD Requesting a Conditional Letter of Map Revision (CLOMR)

As part of the process of obtaining a Conditional Letter of Map Revision (CLOMR) from FEMA, the District has conducted a risk-based analysis to determine the site-specific freeboard necessary to pass the one percent flood discharge. Based on these results, the District may prepare a request to FEMA to relax the freeboard criteria, and thus lower the required floodwall heights.

According to Liang Lee, the FEMA technical consultant has approved the District's risk based analysis and it was now up to FEMA now approve the application. "Should this happen, it would set a precedence for non-federal projects getting approval of this type of approach to flood control. We should hear from FEMA again in a month or so.

As was described in Appendix I of the DEIR, regulations published in NFIP 65 indicate that FEMA will consider freeboard reductions of up to two feet based partly on such statistical analysis. In our case, the reduction is in most cases about 1 ft."

Underground Bypass Between Alma and the Flood Basin

	SCVWD Analysis	MRA Response
Pro	No channel modifications required to either Matadero or Barron Creeks.	The best solution.
	The biological/wildlife environmental impacts would be minimal and could be mitigated.	
Con	36 months of construction impacts (traffic circulation, limited street access by residents, noise and dust).	Current project will be 2 years of these same impacts.
	Relocation of numerous utilities (water, sewer, storm, gas). Some may not be possible due to right of way limitations. Maintaining connectivity with utilities on cross streets and need for gravity flow or pumping for storm drain and sewer lines will increase cost.	
	Ongoing maintenance of this box culvert would require removal of sediment on a regular basis to maintain the hydraulic capacity. Difficult and expensive to perform.	What is done with storm drains in that area? Don't they have the same problem?
	A siphon will be constructed at Hwy 101. Will not drain by gravity. Need a pump station. Has safety and reliability concerns.	Need a pump station anyway for storm drains
	Construction cost estimated at $75 million.	

Upstream Retention Basin

	SCVWD Analysis	MRA Response
Pro	Reduces the required height of floodwalls and headwalls at upstream side of Greer Bridge from 6.6 to 5.5 ft, and downstream from 5.7 to 5:0 ft. Reduces the wall height at upstream side of Louis Bridge from 4.8 to 3.2 ft, and downstream from 3.9 to 2.8 ft.	Reduction by 1 foot combined with another alternative is significant at Greer. Reduction alone is enough at Louis. If this option allows full diversion from Barron Creek (600 cfs), and the pro argument for continuing the Emergency Operating Plan is that a reduction of 600 cfs alleviates the need for raising walls, why wouldn't that also be true here?
Con	City of Palo Alto Municipal Services Center is susceptible to creek overflows. East and West Bayshore and Highway 101 are susceptible to flooding.	We agreed the Downstream Bypass was a must do. That should eliminate this concern.
	Potential impact to endangered species habitat.	
	Cost estimated at approximately $40 million.	Doesn't Stanford share cost?
	Per Christofferson Stanford not interested in plan.	See Stanford's GUP.

Matadero Channel (Full U-Frame) Enlargement

	SCVWD Analysis	MRA Response
Pro	No headwall or floodwall modifications needed upstream of Ross Road	Good for upstream residents.
	The upstream headwall at Louis Road can be decreased from 4.8 feet to 4.1 feet and the downstream headwall can be decreased from 3.9 feet to 3.2 feet.	Also good.
Con	Required headwall heights at Greer Road (5.7 feet at downstream face and 6.6 feet at upstream face) do not change.	Why?
	A far greater number of creekside residents (from Greer Road to Alma Street) will be exposed to construction impacts due to shoring, pile driving, temporary groundwater dewatering, construction vehicle access, and for longer periods of time.	
	Conducting channel modifications within a few feet of the 60KV transmission line buried in the northern bank is very risky.	But can and will be done when replacing Louis Bridge.
Cost	Construction costs rises to $30 million due to extensive and risky shoring, pile driving, and dewatering.	

Remove Greer Road Bridge (while still raising and replacing the Louis Road Bridge)

	SCVWD Analysis	MRA Response
Pro	Reduces the required height of floodwalls and headwalls at upstream side of Greer Bridge from 6.6 to 5.5 ft, and downstream from 5.7 to 5:0 ft. Reduces the wall height at upstream side of Louis Bndge from 4.8 to 3.2 ft, and downstream from 3.9 to 2.8 ft.	Reduction by 1 foot combined with another alternative is significant at Greer. Reduction alone is enough at Louis. If this option allows full diversion from Barron Creek (600 cfs), and the pro argument for continuing the Emergency Operating Plan is that a reduction of 600 cfs alleviates the need for raising walls, why wouldn't that also be true here?
	Inexpensive from a monetary perspective. Bridge removal cost at Greer Road is $30,000. Building_a_pedestrian_bridge will cost $300,000.	Total $330,000
Con	City of Palo Alto noted: Greer carries 2000 vehicles per day. Closing will shift traffic to W. Bayshore and Louis and inconvenience residents, pedestrians and bicyclists on those streets and compromise emergency response.	Greer carries a lot of that traffic because people don't want to use West Bayshore. Given where the ER teams are located (and experience as a 25-year resident), there is almost no compromise to emergency response. Greer is not supposed to be an alternative to West Bayshore or 101. People using it as such will not go all the way to Louis. Besides, you have no problem routing people onto Greer from Louis for 2 seasons while that bridge is being replaced.
	Potential aesthetic impact by constructing a floodwall across the approaches of the bridge.	Do you mean across Greer? How high a wall? Are floodwall heights east of Louis reduced? Why wouldn't it be constructed like Bryant?

Seasonal Barriers

There are several options, such as:

Permanent floodwalls	**Removable floodwalls**	**Removable headwalls**
Alma to Louis	Louis to 101	Louis, Greer, possibly Waverley
Alma to Greer	Greer to 101	Louis, Greer, possibly Waverley
Alma to 101	--	Louis, Greer

	SCVWD Analysis	**MRA Response**
Pro	When the barriers are not in use, the creek view corridor can be maintained. The barriers are relatively easy to install and remove. The barriers can vary in length. The barriers are typically 20 foot in length and 90 pounds each. The barriers are interchangeable units.	All good things.
Con	Requires Maintenance Staff to install and remove the barriers.	How much time? Once in November, again in March.
	Requires storage area or warehouse when the barriers are not in use.	Palo Alto (Public Works or Utilities) is already using a portion of Greer Park. Plenty of room; it's as close to relevant portion of Matadero as you can get. Also close by are the MSC and the power station.
	Additional permanent access to the floodwalls will be required where there is no maintenance road for installation of the barriers.	Which is where? The primary areas where they'd be used already have access roads. See Note 1, from info in the DEIR.
	The barriers are painted but typically, artwork is not applied to the barriers.	Not an issue.
	FEMA may not accept design and remove properties from floodplain.	FEMA won't remove properties in any case east of Ross.
	Scissors lifts/boom trucks may be needed to place the barriers on top of the walls.	Doesn't CPA have any? Certainly had them to lift debris from the creek in 1998.
Cost	For Matadero Creek, the use of the barriers will run $300-$400/linear foot.	Cost is the same as for permanent walls; probably only need to do the section between Louis and 101.
	Projected cost of removable bridge headwalls: Greer $42,000, Louis $32,000	
Note	Initial response from FEMA not promising. Will investigate and follow up with FEMA to verify acceptability. Contacted the users ... Cedar Falls and Corps of Engineers confirmed FEMA acceptance, contrary to feedback from FEMA. Will finalize District position following further clarification with FEMA and COE.	

Note 1: Permanent flood control structures will also be constructed on the maintenance ramps at Highway 101 and Louis Road. The flood control walls consist of galvanized steel sill plates and end plates *embedded in the concrete floodwall with sealed aluminum planks that can be removed only by District personnel when they need access to the channel during summer maintenance activities*. The sealed walls will be left in place at all other times.

Continue Emergency Operating Plan

While we recognize that this option is unacceptable to the Barron Park neighborhood, we are including it because of questions about the District's analysis.

	SCVWD Analysis	MRA Response
Pro	No modification to headwalls or floodwalls along Matadero Creek.	So all this comes down to 600 cfs?
Con	City of Palo Alto Municipal Services Center is susceptible to creek overflows. East and West Bayshore and Highway 101 are susceptible to flooding	We agreed the Downstream Bypass was a must do. That should alleviate this concern.
	Matadero Creek does not have sufficient freeboard during one-percent event.	But it does have capacity per the DEIR. Also, how can this be true if the Pro argument is that no modification to floodwalls or headwalls is necessary?
	Doesn't remove properties from the FEMA flood plain. Residents continue to pay flood insurance, and be subject to special floodplain management building restrictions.	This is true for all alternatives for properties east of Ross Road. The only properties that would be removed are in Barron Park, along Park Avenue and in the Waverley area.
Cost	O&M costs of minimum $50,000 per year.	$50,000 only if the 1% event threatens, not yearly. Any other O&M costs are required anyway.
	Potentially significant liability exposure.	But you're not worried about liability if higher walls fail along the creek from Louis to 101?

Cost Analysis of Possible Combinations of Alternatives

The estimated total first cost of the proposed remediation project for Matadero and Barron Creeks is $14,000,000 and includes costs for design engineering construction, inspection, administration, and mitigation (according to the DEIR).

Combination 1	Combination 2	Combination 3	Combination 4
Downstream Bypass 8,000,000	Downstream Bypass 8,000,000	Downstream Bypass 8,000,000	Downstream Bypass 8,000,000
Raise Louis bridge 925,000	Raise Louis bridge 925,000	Raise Louis bridge 925,000	Raise Louis bridge 925,000
Retention Basin 40,000,000	Remove Greer bridge 30,000	U-Frame Channel 30,000,000	Removable floodwalls 101 to Louis 4600 feet @ $350/ft 1,600,000
	Greer pedestrian bridge 300,000	Removable headwalls on Greer 42,000	Removable headwalls Louis 32,000; Greer 42,000
			Raise floodwalls Louis to Alma 2,700,000
49,000,000	**9,300,00**	**39,000,000**	**13,300,000**
Advantages: Retention basin alone reduces required wall heights on Louis to an acceptable level. Retention basin + raising Louis bridge reduces required wall heights on Greer to an acceptable level.	**Advantages:** Reduces required wall heights on Louis to an acceptable level. Relieves potential backwash problems at Greer bridge. Acts as traffic calming on Greer.	**Advantages:** No headwall or floodwall modifications needed upstream of Ross Road. Reduces required wall heights on Louis to an acceptable level. Seasonal barrier needed only at Greer.	**Advantages:** Satisfies freeboard requirements. When the barriers are not in use, the creek view corridor can be maintained. Combines permanent and removable flood and head walls.

APPENDIX B

NOTICE OF PREPARATION
TO PREPARE
A DRAFT ENVIRONMENTAL IMPACT REPORT
FOR THE MATADERO/BARRON CREEKS REMEDIATION PROJECT,
PALO ALTO, CALIFORNIA

INTRODUCTION AND BACKGROUND

In July of 1996, the Santa Clara Valley Water District (District) completed a series of flood control improvements on Matadero and Barron Creeks. Because of these improvements, the Barron Creek channel now meets FEMA's national standard for flood protection. In addition, these improvements increased the flood protection on Matadero Creek, but they did not meet the design objectives of adequately conveying the 100-year flood flows.

In the spring of 1998, the District decided to undertake a long-term remediation project to bring Matadero Creek flood protection to FEMA national standards. The engineering planning study for this work began in March 1999. The scope of work developed for the planning study included a comprehensive evaluation of the entire hydrologic/hydraulic system for this creek. An analysis of the Palo Alto Flood Basin (PAFB) was conducted as part of this scope of work, to update studies conducted over 20 years ago and to incorporate the PAFB's present-day physical and operational characteristics into the evaluation of channel hydraulics in the lower reaches of Matadero Creek.

The policy of the District is to design flood control improvements to contain the 100-year flood with adequate freeboard to meet the District's and FEMA's requirements. The Matadero Creek channel currently does not have adequate capacity to convey the 100-year flood and meet the freeboard requirements. The District has proposed the development of additional flood control improvements along Matadero Creek from Alma Street downstream to the PAFB.

The Draft EIR will describe and evaluate the potential effects of the proposed Matadero/Barron Creeks Remediation Project in Palo Alto. It will support decision making by the District and other responsible agencies to implement the proposed project and ensure compliance with the California Environmental Quality Act (CEQA) and other pertinent laws and regulations. Direct and indirect environmental effects of the proposed project and alternatives will be evaluated. In addition, a mitigation and monitoring plan will be prepared for implementation and maintenance of the proposed project.

PUBLIC PARTICIPATION

Public participation in the scoping process is considered critical to its success. This Notice of Preparation (NOP) is part of the scoping process whereby the District will refine the scope of issues to be addressed in the Draft EIR and identify the potentially significant environmental issues related to the proposed project. This Notice of Preparation will be reviewed by various state and local government agencies and by the general public.

The District held project scoping information meetings with local environmental groups and environmental regulatory agencies in July and September, 2000. Project background and alternatives for flood management downstream and upstream of Highway 101 and each alternative's potential impacts and mitigation were presented.

Public comment is invited on the NOP for the Draft EIR and on the scope of issues to be included therein. Consistent with time limits mandated by State law, please send any concerns regarding the scope of the EIR no later than 30 days after reciept of this NOP to the contact person identified below. Please provide your name and address with any response, for inclusion on the project's mailing list and future contact.

For Further Information Contact:
Melissa Dargis, Environmental Specialist
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
Fax (408) 264-8427
e-mail: melidarg@scvwd.dst.ca.us
Project information line: (408) 265-2607 ext. 2980
Website: www.scvwd.dst.ca.us/floodmgt/mb_index.htm

LEAD AGENCY INFORMATION

Project Title and Address

Matader/Barron Creeks Remediation Project
Matadero Creek, Palo Alto, between Foothill Expressway and the Palo Alto Flood Basin.

Lead Agency Name and Address

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

PROJECT DESCRIPTION

Study Area Location

Matadero and Barron Creeks are located in the City of Palo Alto, south of San Francisco, and drain into the Palo Alto Flood Basin (PAFB), which then drains into San Francisco Bay. The project site with proposed improvements includes approximately 1.7 miles of Matadero Creek between the PAFB and Alma Street. (See Figure 1)

Primary Objective(s)

The objectives of the proposed Matadero/Barron Creeks Remediation Project are to:

- Increase flood capacity in order to achieve the District's and FEMA's one percent (100-year) flood design flow level of protection with adequate freeboard along Matadero Creek,
- Decrease backwater pressure on Matadero Creek downstream of Highway 101,
- Protect existing sensitive habitat within the Matadero Creek watershed,
- Provide for efficient and cost-effective flood control maintenance, and
- Obtain a Letter of Map Revision from FEMA to remove existing flood prone areas from the Flood Insurance Rate Map as appropriate.

Proposed Project

The engineering analysis conducted to date has determined that additional flood protection improvements are required on Matadero Creek both upstream and downstream of Highway 101. A combination of flood control components will be required to provide the desired flood protection. This EIR will evaluate the potential impacts on the physical environment which would result from these flood control improvements themselves, the secondary impacts of any proposed mitigation, the short term impacts associated with construction, and the long term effects of the planned maintenance program for all of the proposed improvements.

Proposed Improvements Upstream of Highway 101

Upstream of Highway 101, the project proposes several specific improvements, including:

- Replace and raise the Louis Road Bridge;
- Modify the trapezoidal channel just upstream and downstream of Louis Road with a U-frame channel to improve conveyance capacity; and
- Raise floodwalls as necessary along the creek channel (between Highway 101 and Alma Street) and at various bridge crossings to meet FEMA criteria for 100-year flood protection.

Replacement of Louis Road Bridge. Structural investigations have determined that the existing Louise Road Bridge is not structurally able to withstand pressurized flood flows and could suffer overstress damage from excessive uplift forces caused by pressure flows and subsequent high water levels at the bridge headwalls. To ensure that the bridge will remain structurally sound in a 100-year flood event, the existing Louis Road bridge will be replaced with a new prestressed concrete slab bridge and raised by one foot. The replacement bridge will be on the same alignment and structural footprint as the existing structure. Raising the bridge elevation by one foot will require that the roadway approach be raised and repaved on both sides of the bridge.

Modification of Channel Upstream and Downstream of Louis Road. The existing Matadero Creek is a trapezoidal channel from Alma Street downstream to Highway 101. The existing channel will be modified to a U-frame that would extend approximately 65 feet under the Louis Road Bridge. An approximately 40-foot long channel transition (from trapezoidal to U-frame) would be included upstream of Louis Road, and an approximately 20-foot long channel transition would be built downstream. The transition lengths are in addition to the 65-foot length of U-frame channel under the bridge. The construction of the U-frame channel would also include the replacement of any existing floodwalls impacted by the construction.

Raise Floodwalls and Headwalls. There are seven bridge structures that cross Matadero Creek within the project limits. Several of these bridge crossings would experience pressurized flows during the 100-year flood event. Therefore, extension of the headwalls on certain bridges is required to meet FEMA freeboard requirements. The proposed project would raise the existing headwalls at the Greer Road, Ross Road, and Waverley Street bridges. The increased height of headwalls on these bridge crossings will range from 1.0 to 4.0 feet.

Floodwalls along the creek channel banks will also be raised to meet FEMA standards. Based in the hydraulic analysis completed for the project, approximately 13,700 linear feet (90 percent) of the floodwalls in the project area must be raised in order to meet the FEMA freeboard requirements. The increased height of floodwalls will range from 1.0 to 4.5 feet. The raised floodwalls would consist of cast-in-place concrete wall extensions constructed directly on top of and structurally tied into the existing floodwalls.

Proposed Improvements Downstream of Highway 101

The proposed flood management measures for the reach of Matadero Creek downstream of Highway 101 have been designed to relieve backwater pressure by improving conveyance of stormwater inflows to the PAFB. The selected plan calls for construction of an overflow bypass along the edge of the City's Municipal Services Center (MSC). The bypass channel would be approximately 50 to 60 feet wide and would be constructed within the District's easement along the north and east boundaries of the MSC. The bypass channel is expected to convey approximately 1,400 cubic feet of water per second during a 100-year flood event. The proposed bypass channel would originate just downstream of East Bayshore Road, where a sediment basin would be constructed to trap sediment and debris before flood flows enter the bypass channel. The bypass channel would be aligned along the fence line, just north of the MSC before turning to the southeast and draining into the PAFB. (See Figure 2)

Location and Description of Project Compensatory Mitigation Components

Onsite Mitigation Downstream of Highway 101. The area to the east of the MSC currently includes a levee and an upland area (ruderal habitat) that would be removed during construction of the bypass channel. The levee area between the proposed bypass channel and the PAFB would be used for riparian and wetland mitigation. The levee and adjacent upland areas would be excavated to an elevation of between 0.0 feet and -1.0 feet and the soils ripped to relieve compaction. Contract-grown red willow and cottonwood plantings, and other native trees and shrubs would be installed in this area to blend with the existing stands of willow and other native plants on site.

Additional onsite riparian mitigation will occur where willow riparian habitat would be removed during construction, but no hardscape would be installed, allowing for replanting with native stock. Opportunities for such mitigation exist along East Bayshore Road and southwest of the proposed sediment basin.

Offsite Mitigation. Potential mitigation areas within SCVWD easements along both the Matadero and Barron Creek corridors are currently being investigated to provide additional mitigation sites for this project.

ALTERNATIVES TO THE PROPOSED PROJECT MODIFICATIONS

Part of the planning study process has included a comprehensive evaluation of the entire hydrologic/hydraulic system of Matadero Creek. As part of this study, an analysis of the PAFB was conducted to incorporate the PAFB's present physical and operational conditions into the evaluation of the creek channel hydraulics in the lower reaches of Matadero Creek. From this hydraulic analysis, it was recognized that some combination of upstream and downstream flood control measures would likely be required to achieve the flood protection objectives of this project. At a minimum, the following components will be evaluated in the EIR as part of the planning study.

- No Project alternative. The No Project alternative would maintain the current operating procedures of the Matadero/Barron system for the entire project site.

Downstream of Highway 101:

- Overflow Spillway to Renzel Marsh. This alternative would allow for overflow into the adjacent Renzel Marsh area, with periodic inundation depths of up to eight feet lasting as long as two weeks.

- Underground Bypass Channel. This alternative would consist of a 40-foot wide, 8-foot high box culvert under East Bayshore Road.

- Overflow Bypass Channel on MSC Property. This alternative would be the same basic design as the proposed project, except that it would be partially located within the boundary of the MSC property.

Upstream of Highway 101:

- Minimize Floodwall Work. This alternative would include a 36-foot wide U-frame concrete channel to replace the existing concrete trapezoidal channel from Greer Road Bridge to Alma Street.

- Discharge Reduction. This alternative would consist of an off-stream storage basin near Foothill Expressway.

POSSIBLE ENVIRONMENTAL EFFECTS

This DEIR will fulfill CEQA requirements necessary to implement the proposed flood control project. Initial investigation indicates that construction of the proposed project may result in potentially significant environmental impacts. This DEIR will address the following specific environmental catagories related to the proposed project.

- **Land Use.** The DEIR will describe existing land uses and their compatability with the proposed project. The discussion will also address loss of open space as appropriate. Mitigation for potentially significant land use impacts will be identified.

- **Geology and Soils.** The DEIR will describe the geologic characteristics of the project area and the associated potential impacts. Geologic and seismic impacts will be addressed and mitigation will be identified.

- **Hydrology and Water Quality.** The DEIR will address existing flooding issues, groundwater impacts, and water quality impacts associated with construction of the proposed project. Conformance with the Santa Clara County Nonpoint Source Pollution Control Program will be addressed and mitigation for all potentially significant impacts will be developed.

- **Biological Resources.** The DEIR will identify and describe existing habitat within the project area. It will also identify special status species considered likely to occupy or utilize the site. This section will include a qualitative overview of the impacts associated with potential loss of habitat for special status species within or adjacent to the proposed site. Mitigation for identified impacts will be developed.

- **Hazardous Materials.** The DEIR will describe the existing conditions on and adjacent to the project site and identify on-site or adjacent facilities that appear likely to use, handle, and/or store hazardous materials. Potentially significant impacts will be identified and mitigated.

- **Cultural Resources.** The DEIR will identify known historic and archeological sites in the general vicinity of the project area. This section will identify any possible disturbance of cultural resources or human remains that could result from implementation of the proposed project. Mitigation for potentially significant impacts will be developed.

- **Aesthetics.** The DEIR will determine if the proposed project will degrade or substantially modify the existing visual character of the project area. Mitigation for potentially significant impacts will be identified.

- **Transportation.** An analysis of existing road conditions will be made for all roads potentially affected by implementation of the proposed project. If necessary, for mitigation, the DEIR will identify the need for a transportation plan to be developed for the duration of construction, and mitigation for other traffic related impacts.

- **Air Quality.** The DEIR will analyze the project's potential contribution to existing local and regional air pollution issues. Because of the nature of the project , potential impacts would be caused exclusively by construction activities. Mitigation for potentially significant impacts will be developed.

- **Noise.** The DEIR will identify the existing setting and the projected noise levels associated with the proposed project. The EIR will also address conformance with the Palo Alto Noise Ordinance. Potentially significant impacts will be identified and mitigated.

- **Utilities.** The DEIR will discuss the location and function of existing infrastructure within the project area and identify any potential conflicts with construction activities. Potentially significant impacts will be identified and appropriate mitigation will be developed.

The DEIR will also include all other impact assessment sections required by the CEQA Guidelines, including identification of significant unavoidable impacts, cumulative impacts, and growth inducing impacts.

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse

Gray Davis
GOVERNOR

Steve Nissen
DIRECTOR

Notice of Preparation

July 19, 2001

To: Reviewing Agencies

Re: Matadero/Barron Creeks Remediation Project
SCH# 1987122908

Attached for your review and comment is the Notice of Preparation (NOP) for the Matadero/Barron Creeks Remediation Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Melissa Dargis
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

for K.S.T.

Katie Shulte Joung
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
916-445-0613 FAX 916-323-3018 WWW.OPR.CA.GOV/CLEARINGHOUSE.HTML

Document Details Report
State Clearinghouse Data Base

SCH# **1987122908**
Project Title Matadero/Barron Creeks Remediation Project
Lead Agency Santa Clara Valley Water District

Type **NOP** Notice of Preparation

Description Additional flood protection improvements on Matadero Creek in Palo Alto, between Foothill Expressway and Highway 101, to contain the 100-year flood with adequate freeboard to meet the District's and FEMA's requirements.

Lead Agency Contact

Name Melissa Dargis
Agency Santa Clara Valley Water District
Phone 408-265-2607 x2692 ***Fax***
email
Address 5750 Almaden Expressway
City San Jose ***State*** CA ***Zip*** 95118

Project Location

County Santa Clara
City Palo Alto
Region
Cross Streets Matadero Creek between Foothill Expressway and Highway 101
Parcel No.
Township ***Range*** ***Section*** ***Base***

Proximity to:

Highways 101
Airports
Railways SPRR
Waterways San Francisco Bay, Matadero Creek
Schools
Land Use

Project Issues Aesthetic/Visual; Air Quality; Archaeologic-Historic; Geologic/Seismic; Noise; Public Services; Toxic/Hazardous; Traffic/Circulation; Water Quality; Growth Inducing; Landuse; Other Issues; Biological Resources

---

Reviewing Agencies Resources Agency; Department of Conservation; Office of Historic Preservation; Department of Parks and Recreation; San Francisco Bay Conservation and Development Commission; Department of Water Resources; Department of Fish and Game, Region 3; Native American Heritage Commission; State Lands Commission; Caltrans, District 4; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Board, Region 2; Department of Toxic Substances Control

---

Date Received 07/19/2001 ***Start of Review*** 07/19/2001 ***End of Review*** 08/17/2001

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: Santa Clara

SCH# 1987122908

Resources Agency

☒ **Resources Agency**
Nadell Gayou

☐ **Dept. of Boating & Waterways**
Bill Curry

☐ **California Coastal Commission**
Elizabeth A. Fuchs

☒ **Dept. of Conservation**
Ken Trott

☐ **Dept. of Forestry & Fire Protection**
Allen Robertson

☒ **Office of Historic Preservation**
Hans Kreutzberg

☒ **Dept of Parks & Recreation**
Resource Mgmt. Division

☐ **Reclamation Board**
Pam Bruner

☒ **S.F. Bay Conservation & Dev't. Comm.**
Steve McAdam

☒ **Resources Agency**
Nadell Gayou
Dept. of Water Resources

Health & Welfare

☐ **Health & Welfare**
Wayne Hubbard
Dept. of Health/Drinking Water

Food & Agriculture

☐ **Food & Agriculture**
Tad Bell
Dept. of Food and Agriculture

Fish and Game

☐ **Dept. of Fish & Game**
Scott Flint
Environmental Services Division

☐ **Dept. of Fish & Game**
Donald Koch
Region 1

☐ **Dept. of Fish & Game**
Banky Curtis
Region 2

☒ **Dept. of Fish & Game**
Robert Floerke
Region 3

☐ **Dept. of Fish & Game**
William Laudermilk
Region 4

☐ **Dept. of Fish & Game**
Sandy Peterson
Region 5, Habitat Conservation Program

☐ **Dept. of Fish & Game**
Gabrina Gatchel
Region 6, Habitat Conservation Program

☐ **Dept. of Fish & Game**
Tammy Allen
Region 6, Inyo/Mono, Habitat Conservation Program

☐ **Dept. of Fish & Game**
Tom Napoli
Marine Region

Independent Commissions

☐ **California Energy Commission**
Environmental Office

☒ **Native American Heritage Comm.**
Debbie Treadway

☐ **Public Utilities Commission**
Andrew Barnsdale

☒ **State Lands Commission**
Betty Silva

☐ **Governor's Office of Planning & Research**
State Clearinghouse Planner

☐ **Colorado River Board**
Gerald R. Zimmerman

☐ **Tahoe Regional Planning Agency (TRPA)**
Lyn Barnett

☐ **Office of Emergency Services**
John Rowden, Manager

☐ **Delta Protection Commission**
Debby Eddy

☐ **Santa Monica Mountains Conservancy**
Paul Edelman

Dept. of Transportation

☐ **Dept. of Transportation**
IGR/Planning
District 1

☐ **Dept. of Transportation**
Vicki Roe
Local, Development Review,
District 2

☐ **Dept. of Transportation**
Jeff Pulverman
District 3

☒ **Dept. of Transportation**
Jean Finney
District 4

☐ **Dept. of Transportation**
Lawrence Newland
District 5

☐ **Dept. of Transportation**
Marc Birnbaum
District 6

☐ **Dept. of Transportation**
Stephen J. Buswell
District 7

☐ **Dept. of Transportation**
Mike Sim
District 8

☐ **Dept. of Transportation**
Caroline Yee for Kate Walton
District 9

☐ **Dept. of Transportation**
Chris Sayre
District 10

☐ **Dept. of Transportation**
Lou Salazar
District 11

☐ **Dept. of Transportation**
Aileen Kennedy
District 12

Business, Trans & Housing

☐ **Housing & Community Development**
Cathy Creswell
Housing Policy Division

☐ **Caltrans - Division of Aeronautics**
Sandy Hesnard

☐ **California Highway Patrol**
Lt. Dennis Brunette
Office of Special Projects

☐ **Dept. of Transportation**
Ron Helgeson
Caltrans - Planning

☐ **Dept. of General Services**
Robert Sleppy
Environmental Services Section

Air Resources Board

- ☐ Airport Projects
  Jim Lerner

- ☐ Transportation Projects
  Ann Geraghty

- ☐ Industrial Projects
  Mike Tollstrup

☐ **California Integrated Waste Management Board**
Sue O'Leary

☐ **State Water Resources Control Board**
Diane Edwards
Division of Clean Water Programs

☒ **State Water Resources Cont Board**
Greg Frantz
Division of Water Quality

☐ **State Water Resouces Cont Board**
Mike Falkenstein
Division of Water Rights

☒ **Dept. of Toxic Substances**
CEQA Tracking Center

Regional Water Quality Con Board (RWQCB)

☐ **RWQCB**
Cathleen Hudson
North Coast Region (1)

☒ **RWQCB**
Environmental Document Coordinator
San Francisco Bay Region (2

☐ **RWQCB**
Central Coast Region (3)

☐ **RWQCB**
Jonathan Bishop
Los Angeles Region (4)

☐ **RWQCB**
Central Valley Region (5)

- ☐ **RWQCB**
  Central Valley Region (
  Fresno Branch Office

- ☐ **RWQCB**
  Central Valley Region (
  Redding Branch Office

☐ **RWQCB**
Lahontan Region (6)

- ☐ **RWQCB**
  Lahontan Region (6)
  Victorville Branch Offic

☐ **RWQCB**
Colorado River Basin Regio

☐ **RWQCB**
Santa Ana Region (8)

☐ **RWQCB**
San Diego Region (9)

STATE OF CALIFORNIA Gray Davis, *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 – Fax
www.nahc.ca.gov – web site

July 20, 2001

Melissa Dargis
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

RE: SCH# 1987122908 – Matadero/Barron Creeks Remediation Project

Dear Ms. Dargis:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess the project-related impact on archaeological resources, the Commission recommends the following action be required:

1. Contact the appropriate Information Center for a records search. The record search will determine:
    - Whether a part or all of the project area has been previously surveyed for cultural resources.
    - Whether any known cultural resources have already been recorded on or adjacent to the project area.
    - Whether the probability is low, moderate, or high that cultural resources are located within the project area.
    - Whether a survey is required to determine whether previously unrecorded cultural resources are present.

2. The final stage of the archaeological inventory survey is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    - Required the report containing site significance and mitigation be submitted immediately to the planning department.
    - Required site forms and final written report be submitted within 3 months after work has been completed to the Information Center.

3. Contact the Native American Heritage Commission for:
    - A Sacred Lands File Check.
    - A list of appropriate Native American Contacts for consultation concerning the project site and assist in the mitigation measures.

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should include provisions for accidentally discovered archeological resources during construction per California Environmental Quality Act (CEQA) §15064.5 (f). Health and Safety Code §7050.5 and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery and should be included in all environmental documents. If you have any questions, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Associate Governmental Program Analyst

cc: State Clearinghouse

August 6, 2001.

Ms. Melissa Dargis
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

Dear Ms. Dargis,

Please convey my thanks to Chief Executive Officer Stanley M. Williams for notifying me of the preparation for the Matadero/Barron Creek Remediation Project Draft Enviornment Impact Report and designating you as the person to whom I might express my feelings.

My wife and I have lived for over 51 years at 3338 Ramona Street which is three houses North of the bridge over Barron Creek. We have witnessed large flows and some overflowing during winter rain storms. It is my understanding that the Remediation Project plans will include provisions to divert some of the Matadero Creek water into Barron Creek when the Matadero flow exdeeds some peak value. This obviously will exceed the flow capacity of the Ramona St. and South Ct. bridges (and probably others) over Barron Creek. This will probably require raising the level of these bridges as has been done to bridges over Matadero Creek. My request to you is to persuade the City of Palo Alto to remove these bridges entirely. This would restore a measure of uniformity to the overall street plan (there is no equivalent bridge over Matadero Creek on either Ramona Street or South Court Street) and would remove two probable causes of flooding thereby increasing the effectiveness of your overall flood control plan. The removal of the bridge across Barron Creek on Ramona Street would also aleviate a serious bypass traffic situation.

I would appreciate your comments on my request,

Sincerely,

George E Falkenthal

George E. Falkenthal
3338 Ramona Street
Palo Alto, CA 94306
(650) 493-8401.

California Regional Water Quality Control Board
San Francisco Bay Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis
Governor

Date: AUG 0 8 2001
File No. 2188.07 (PFA)

Ms. Melissa Dargis
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Subject: Response to the July 18, 2001, Notice of Preparation for the Matadero/Barron Creeks Remediation Project Draft Environmental Impact Report

Dear Ms. Dargis:

Thank you for the opportunity to review the Notice of Preparation (NOP) for the subject project. San Francisco Bay Regional Water Quality Control Board (Regional Board) staff has reviewed the NOP and upon request of the Santa Clara Valley Water District (District) is providing written comment by the August 17, 2001 deadline.

The subject project, as described, proposes to modify parts of Matadero Creek to achieve 100-year flood protection standards of the Federal Emergency Management Agency (FEMA). According to engineering analysis, Matadero Creek will not currently meet these standards.

Matadero/Barron Creeks are located in the City of Palo Alto, and drain into the Palo Alto Flood Basin (PAFB), which flows into San Francisco Bay. The proposed project reach is a 1.7-mile section between Alma Street upstream and the PAFB downstream. The Proposed Project alternative would involve the following actions:

- Replacement of Louis Road Bridge,
- Modification of channel upstream and downstream of Louis Road,
- Raising floodwalls and headwalls,
- Construction of an overflow bypass along the edge of the City's Municipal Services Center.

Onsite mitigation for project impacts would include establishment of native riparian vegetation where an existing levee would be removed. Offsite mitigation opportunities are being investigated along Matadero and Barron Creeks.

Six project alternatives have been described, including:

- No Project alternative,
- Overflow Spillway to Renzel Marsh,
- Underground Bypass Channel,

- Minimize Floodwall Work,
- Discharge Reduction.

The District has requested that the Regional Board staff describe their "...views or those of your agency as to the scope and content of the environmental information", to be included in the Draft Environmental Impact Report for the subject project. The Regional Board is charged with protecting beneficial uses of waters of the State as described in the Water Quality Control Plan (Basin Plan) dated June 21, 1995. According to the Basin Plan, the following beneficial uses are designated as existing for Matadero Creek:

- COLD – COLD FRESHWATER HABITAT
- MIGR – FISH MIGRATION
- REC-1 – WATER CONTACT RECREATION
- REC-2 - CONCONTACT WATER RECREATION
- SPAWN – FISH SPAWNING
- WARM – WARM FRESHWATER HABITAT
- WILD – WILDLIFE HABITAT

Regional Board staff would like the District to assess direct and indirect impacts to designated beneficial uses as a result of the proposed project modifications, as well as the alternatives to the proposed project modifications, as part of the California Environmental Quality Act (CEQA) process. This assessment should consider at a minimum, the following:

- How all project alternatives would cause direct and/or indirect impacts to beneficial uses of Matadero Creek,
- Alternatives analysis describing how projects will avoid, and minimize impacts to Matadero Creek,
- A description of unavoidable impacts,
- Proposed mitigation for unavoidable impacts.

Regional Board staff are available to work with District staff to help develop assessment criteria and further discuss assessment details during development of the Draft EIR.

At this time, Regional Board staff are especially concerned with the following project descriptions:

- The District is proposing to replace the existing concrete slab bridge at Louis Road Bridge, with a prestressed concrete slab bridge that will provide additional capacity during the 100-year flood event. If possible, consideration should be given to removing the concrete channel lining from Matadero Creek and constructing a clear span bridge or other less damaging alternative.

- The District is proposing to replace trapezoidal concrete channels with U-frame concrete channels. Thorough review should be given to alternatives that reduce the need for concrete lined channels. If possible, any opportunity to replace concrete lined channels with naturally functioning channels is strongly encouraged and can, where appropriate, be considered for mitigation credit.

- A bypass channel is proposed downstream of Highway 101, that will be able to carry 1,400 cubic feet per second during the 100-year flood event. Design consideration should include dealing with the potential for increased sediment deposition in Matadero Creek between the inlet and outlet of the bypass channel during a bypass event.

Regional Board staff encourage District staff to pursue flood control measures that avoid impacts to beneficial uses to the maximum extent practicable. Opportunities to increase flood storage through the use of detention basins and existing adjacent wetlands or flood conveyance via bypass channels are generally preferred over concrete lined channels. We are pleased to see the District considering these options as alternatives to the Proposed Project alternative. We would like to work with District staff to further develop flood control alternatives that provide flood damage protection and protection of beneficial uses of Matadero Creek.

If you have any questions regarding this letter please contact Paul Amato of my staff at (510) 622-2429 or by email at pa@rb2.swrcb.ca.gov.

Sincerely,

Dale Bowyer
Section Leader
South East Bay Watershed

STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, *Governor*

DEPARTMENT OF TRANSPORTATION
P O BOX 23660
OAKLAND, CA 94623-0660
Tel: (510) 286-4444
Fax: (510) 286-5513
TDD (510) 286-4454

RECEIVED
AUG 27 2001
DAVID J. POWERS & ASSOC., INC.

August 17, 2001

SCL-101-52.17
1987122908
SCL101692

Ms. Melissa Dargis
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Dear Ms. Dargis:

Matadero/ Barron Creeks Remediation Project - Notice of Preparation (NOP)

Thank you for including the California Department of Transportation in the environmental review process for the proposed project. We have examined the Notice of Preparation and have the following comments to offer:

Caltrans owns and maintains bridges and storm drainage facilities that drain to Matadero and Barron Creeks at the following crossings: State Route 82/ Matadero Creek, U.S. Route 101/ Matadero Creek, and U.S. Route 101/ Barron-Adobe Creek. Caltrans also owns and maintains a cross culvert at State Route 82 for Barron Creek. It is unclear from the NOP whether or not Caltrans' facilities will be effected by the proposed project. The Draft Environmental Impact Report (DEIR) should address the issue of how the State bridges, culvert and storm drainage facilities mentioned above will be effected.

We would like the opportunity to review the project plans as they progress so we can ensure that our bridges and storm drainage facilities are addressed in the design of your Matadero and Barron Creeks remediation project.

We look forward to reviewing the DEIR for this project. We do expect to receive a copy from the State Clearinghouse, but in order to expedite our review, you may send two copies in advance to:

Maija Cottle
Office of Transportation Planning B
Department of Transportation, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Should you require further information or have any questions regarding this letter, please call Maija Cottle, of my staff at (510) 286-5737.

Sincerely,

HARRY Y. YAHATA
District Director

By Maija Cottle for

JEAN C. R. FINNEY
District Branch Chief
IGR/CEQA

c: Katie Shulte Joung (State Clearinghouse)

Melissa Dargis

From: David Johnston [SMTP:djohnston@dfg.ca.gov]
Sent: Friday, August 10, 2001 3:06 PM
To: melidarg@scvwd.dst.ca.us
Subject: Matadero/Barron Creeks DEIR

Hi Melissa:

We met two weeks ago on those two 1600 reviews (I was with Marcia Grefsrud). I have been passed the NOP for the EIR referenced above and wonder if you would have time to give me a quick tour.

I also have two clarification questions:

1. Is Barron Creek involved in any way?
2. What improvements are proposed between Waverly and Foothill? Nothing is referenced with the possible exception of raising floodwalls.

I am tied up Monday and most of Friday, but am free Tuesday, Weddnesday and Thursday. I have a meeting at 10:30 at Stanford on Friday, so meeting before that would be best for me, but that's the day the comments are due. Do you have any free time next week?

Dave Johnston
(831)459-0939
California Department of Fish and Game

Melissa Dargis

From: Mary Deluzuriaga [SMTP:marydl@winprop.com]
Sent: Friday, August 10, 2001 8:09 AM
To: melidarg@scvwd.dst.ca.us
Subject: Notice of Prep - Matadero/Barron Creeks Remdiation Project Draft EIR

You have requested a contact with Winkal Holdings LLC for providing information on the Matadero/Barron Creeks Remediation Project Draft EIR. This relates to our property at 3375 El Camino Real. You may send correspondence to me at the address noted below:

Mary de Luzuriaga
Director of Property Management
Winkal Management LLC
66 Field Point Road
Greenwich, CT 06830
marydl@winprop.com

Thank you.

Melissa Dargis

From: sam@elsternet.com [SMTP:sam@elsternet.com]
Sent: Thursday, August 09, 2001 4:21 PM
To: melidarg@scvwd.dst.ca.us
Subject: Matadero/Barron Creek Project

Dear Melissa Dargis and/or Stanley M. Williams
I am in receipt of your letter of July 18, 2001 re: above project.I tried to access your website but it was not available. Considering the recent Bypass completion I dont understand the scope of this new project.

My property is on Matadero Creek so any changes would affect me. Please tell me how to get the particulars on the proposed Project.

Your letter referenced www.scvw.dst.ca.us/floodmgt/mb_index.htm. This website was unavailable as of Aug 9, 2001.

Respectfully

Samuel Elster
3744 Laguna Oaks Place
Palo Alto CA, 94306

Tel 650 493-7092
E_Mail: sam@elsternet.com

Melissa Dargis

From: Katja Broddesson [SMTP:katjab@mindspring.com]
Sent: Tuesday, July 24, 2001 2:20 PM
To: melidarg@scvwd.dst.ca.us
Subject: Notice

To whom it may concern,

I received a letter ("Notice of Preparation") regarding Matadero/Barron Creek.
It's addressed to "agencies" and their "responsibilities" etc.
I just wondered why a private residence would receive such a letter, and what it's point is.
By the way, the letter is almost impossible to understand. It's written in a very unclear way with lots of words that regular poeople do not use.
After all, not everyone has a graduate degree.
I'm looking forward to hearing from you.

Sincerely, Katja Broddesson

katjab@mindspring.com

Melissa Dargis
From: Leif Schaumann [SMTP:leifschaumann@yahoo.com]
Sent: Monday, July 23, 2001 4:20 PM
To: melidarg@scvwd.dst.ca.us
Subject: Matadero/Barron Creek Remediation

Hi, Melissa Dargis:

We would like to see the Matadero Creek channels from Louis Road and into the Bay Lands, east of East Bayshore Road, thoroughly cleaned out and subsequently dredged and cleaned annually in September/October.

Currently, the channels appear to be oversilted by many feet (3 - 5?) and also overgrown with different kinds of vegetation, one each side of Highway 101. This situation can only aggrevate any threatening creek overbanking, perhaps even cause such a potential disaster.

Please keep us informed of any news in this regard.

Our address is:

Annette and Leif Schaumann
2640 Elmdale Ct
Palo Alto, CA 94303-3728.

Please delete your record reading "Annette Schoueiseur" at the above street and city address.

Thank you. -- Leif Schaumann/leifschaumann@yahoo.com
07-23-01

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http://phonecard.yahoo.com/

Melissa Dargis

From: Chuck Bradley [SMTP:cwbradly@postoffice.pacbell.net]
Sent: Monday, July 23, 2001 12:11 PM
To: melidarg@scvwd.dst.ca.us
Subject: EIR Preparation Notice

Ms. Melissa Dargis,

Thank you for including me in your recent "EIR Notice of Preparation." I am a homeowner of property adjacent to the Matadero Creek on Waverley Street and would like to be included in the EIR input process. Please let me know how this is done.

Chuck Bradley
2957 Waverley Street
Palo Alto, California 94306
(650) 856-6430
cwbradly@pacbell.net

Melissa Dargis

From: James A. Dingler [SMTP:jdingler@pacbell.net]
Sent: Monday, July 23, 2001 6:46 AM
To: melidarg@scvwd.dst.ca.us
Subject:

Dear Ms. Dargis,
I received the notice of an Environmental Impact Report for cleaning out Barron Creek. This is a "no brainer"! The creek has not been cleaned in years and is FULL of silt, tall grass, shopping carts, wood and even small trees are growing in it! I do not understand why an Environmental Report is required or needed. The clean out needs to be done before the rains come this fall so PLEASE go do it! My property is located at 3433 Kenneth Drive and backs up to Barron Creek.

Sincerely,
James A. Dingler

Melissa Dargis
From: Keith Anderson [SMTP:streams42morrow@earthlink.net]
Sent: Sunday, July 22, 2001 7:54 PM
To: melidarg@scvwd.dst.ca.us
Cc: jasochri@scvwd.dst.ca.us; jennmick@scvwd.dst.ca.us; stanwil@scvwd.dst.ca.us; gregzlot@scvwd.dst.ca.us
Subject: NOP: Matadero/Barron Creeks DEIR

July 22, 2001

Melissa:

In Saturday's mail (July 21), I received the Notice of Preparation (NOP) for the Matadero/Barron Creeks Remediation Project Draft EIR. You are identified as the District contact person, thus the reason I am sending this email to you.

The NOP fails to provide the minimum information mandated by CEQA Guidelines Section 15082. It fails to provide the mandated description of project, specific location of project, and probable environmental effects of the project. This incomplete and invalid NOP fails to provide the information necessary to make a meaningful response.

The NOP is legally deficient on its face; therefore, the public comment period for input on the scope of the EIR as provided by CEQA and the CEQA Guidelines has not started. The August 17, 2001 comment deadline identified in the NOP is invalid.

We request that the District issue a new NOP that complies with CEQA Guidelines Section 15082 in order to facilitate meaningful agency and public comment on the scope of the draft EIR.

Please advise by return email as to the District's response to our
concern and request. We hope a resolution can be achieved prior to
Tuesday's Board of Directors meeting. If not, we may formally protest
the NOP during the 9:35 a.m. Public Comment period at the Tuesday
Board meeting. We look forward to your reply. Regards,
Keith Anderson
Environmental Advocate
Santa Clara County Streams For Tomorrow

Melissa Dargis

From: Keith Anderson [SMTP:streams42morrow@earthlink.net]
Sent: Monday, July 23, 2001 2:17 PM
To: Melissa Dargis
Cc: Jason Christie; Jennie Micko; Stanley Williams; Greg Zlotnick
Subject: Re: Matadero/Barron Creeks DEIR

Melissa:

Thanks for the explanation. We await receipt of the actual NOP. In our opinion, the courtesy notice generates confusion because it is identified as Notice of Preparation and makes no reference to being an informal courtesy notice. There was no need to create this confusion. Be that as it may, we will take no action regarding this one page notice until we review the document you are identifying as the actual NOP. Again, thanks for the reply.

Keith

From: Melissa Dargis <MeliDarg@scvwd.dst.ca.us>
To: 'Keith Anderson' <streams42morrow@earthlink.net>
Cc: Jason Christie <JasoChri@scvwd.dst.ca.us>, Jennie Micko <JennMick@scvwd.dst.ca.us>, Stanley Williams <StanWil@scvwd.dst.ca.us >, Greg Zlotnick <GregZlot@scvwd.dst.ca.us>
Subject: RE: Matadero/Barron Creeks DEIR
Date: Mon, Jul 23, 2001, 10:01 AM

Keith,

Thank you for your e-mail. The one-page notice that you received regarding the Matadero/Barron Creek project NOP was a courtesy indicating the availability of the NOP for the project. This one-page notice was mailed to adjacent property owners and project meeting attendees. The full document (NOP) was mailed to State Clearinghouse, Department of Fish and Game, Regional Water Quality Control Board, Army Corps of Engineers and the City of Palo Alto.

CEQA clearly states that the NOP must be sent to Responsible and Trustee agencies, involved federal agencies, State Clearinghouse and to parties previously requesting the notice in writing. Guidelines sec. 15082(a). Although not required, the Lead Agency should consider sending the NOP to all parties that may be interested in the project, including neighboring landowners.

I apologize for the oversight of not sending you the full package. I will put one in the mail today. However the comment period, per CEQA requirements, did start on July 19th (State Clearinghouse posting) and will finish on August 17, 2001.

We appreciate your comments. If you have any other questions, please do not hesitate to e-mail or call me at 408-265-2607 ext. 2692.

Thank you,
Melissa

Shannon George

Subject: FW: Barron/Matadero Creeks Remediation Project EIR

From: ACol414176@aol.com <mailto:ACol414176@aol.com>
[SMTP:ACol414176@aol.com] <mailto:[SMTP:ACol414176@aol.com]>
Sent: Saturday, August 04, 2001 4:58 PM
To: melidarg@scvwd.dst.ca.us <mailto:melidarg@scvwd.dst.ca.us>
Subject: Barron/Matadero Creeks Remediation Project EIR

This is in response to your letter of July 18

This should be titled the "Re-remediation Project", since it is designed to correct the mistakes of the first remediation project. Recommend that this time you accept the fact that we are not idiots and can fairly evaluate alternatives when given factual, not biased, cost-benefit analyses. Please don't slant your environmental analyses to favor the option your staff wants, and please include an analysis of a "doing nothing" option for the prooject as a whole.

Allan L. Coleman

Shannon George

Subject: FW: EIR Matadero/Barron Creeks

From: Bobgmoss@aol.com <mailto:Bobgmoss@aol.com>
[SMTP:Bobgmoss@aol.com]
<mailto:[SMTP:Bobgmoss@aol.com]>
Sent: Tuesday, July 31, 2001 12:42 PM
To: melidarg@scvwd.dst.ca.us <mailto:melidarg@scvwd.dst.ca.us>
Subject: EIR Matadero/Barron Creeks

Please send a copy of the EIR for the Matadero/Barron Creek remediation project to:

Bob Moss
4010 Orme
Palo Alto, Ca 94306

for the Barron Park Association Foundation

Thank you

APPENDIX C

2001 SMP Best Management Practices for Bank Protection and Sediment Removal			
BMP	**Title**	**Description**	**Activity**
		provide guidance and specifications as to implementation of the erosion control measures described: SC-3. Sediment Basins SC-4. Straw or Sand Bag Barriers SC-5. Sediment Traps SC-6. Silt Fences SS-1. Erosion Control Blankets, Mats, and Geotextiles VR-1. Brush or Rock Filters VR-2. Check Dams VR-4b. Temporary Outlet Protection VR-4b. Storm Drain Inlet Protection WD-1. Earth Dike WD-1. Slope Drain WD-3. Temporary Drains and Swales	
5	Use of Wheel and Track Mounted Vehicles in Stream Bottoms	District personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately-tired vehicles, either tracked or wheeled, shall be used depending on the situation: a) Use of tracked vehicles shall focus on selecting low ground pressure equipment and, when possible, avoiding areas where channel topography would be unduly impacted by equipment. b) When possible, tracked equipment will be chosen in lieu of wheeled vehicles in areas where soil types are highly susceptible to compaction.	Both
6	Pump/ Generator Set Operations and Maintenance	Pumps and generators shall be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. a) Pumps and generators shall be maintained according to manufacturer's specifications to regulate flows to prevent dryback or washout conditions. b) Pumps shall be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding. c) Pump intakes shall be screened to prevent uptake of fish and other vertebrates.	Both
7	Pump intake clearance structure	Pump clearance systems will be used in creeks fines at the pump intake location. Mount pump to pallet or other suitable base platform to provide clearance from channel bottom, which will reduce high velocity around pump intake.	Both
8	Fabric-lined Invert Upstream of Bypass Pump	In streams with ponded water, where pumping action increases velocity in the upstream channel and project inspection shows increased mobilization of sediment fines in flow, filter fabric will be laid in the channel bottom and secured upstream of bypass pump where sediment is mobilizing. Field judgment will be used to determine where sediment is mobilizing.	Both
9	Handle Sediments So As to Minimize Water Quality Impacts	Sediments shall be stored and transported in a manner that minimizes water quality impacts. a) Wet sediments may be stockpiled outside of a live stream or may be stockpiled within a dewatered stream so water can drain or evaporate before removal. This measure is dependent upon the availability of a stockpile site. b) Temporary stockpiles will be isolated. c) Trucks may be lined with an impervious material (e.g., plastic), or the tail gate blocked with dry dirt or hay bales, for example, or trucks may drain excess water by slightly tilting their loads and allowing the water to drain out. d) Water shall not drain directly into channels (outside of the work area) or onto city streets without providing water quality control measures. e) Streets shall be cleaned of mud and/or dirt by street sweeping, as necessary, and not by hosing down the street.	SR

BMP	Title	Description	Activity
10	Soil Stockpiles	If soil is to be stockpiled, no run-off will be allowed to flow back to creek outside of the work area in which water quality BMPs have been implemented.	SR
11	Avoid Exposing Soils with High Mercury Levels	Bank Protection projects in portions of the Guadalupe River watershed affected by historical mercury mining may expose soils containing mercury which can affect stream water quality. In the specified channel reaches in the Guadalupe River Basin, soils that are likely to be disturbed or excavated shall be tested for Mercury (Hg). Soils shall be remediated if: a) Disturbed or excavated soils exposed to flood flows below the 2.33-year channel flow level exceed 1 ppm Hg, or b) Disturbed or excavated soils above the 2.33-year flow level exceed 20 ppm Hg. C. Remediation can be accomplished either by: 1) treating the site so that contaminated soils excavated for the purpose of installing bank protection will not be susceptible to erosion, or 2) by further excavating contaminated soils and replacing them with clean fill or other bank protection materials that are free from contaminants.	BP
12	Concrete Use Near Waterways	Concrete that has not been cured is alkaline and can increase the pH of the water; fresh concrete will be isolated until it no longer poses a threat to water quality. a) Use plastic sheeting or otherwise isolate concrete that is used in channels for 2 weeks to one month to allow time for curing. b) Designate an area outside of the channel and floodplain to clean out concrete transit vehicles.	BP
13	Groundwater Management	If high levels of groundwater in a work area are encountered, the water may be pumped out of the work site. If necessary to protect water quality, the water shall be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a creek.	Both
14	Prevent Scour Downstream of Sediment Removal	Sites in the transport zone on alluvial fans may cause increased scour downstream if they experience rapid sediment accumulation after sediment removal. Channel reaches up to 500 feet downstream from such sediment removal sites will be monitored to determine whether accelerated erosion is occurring. If downstream monitoring indicates that erosion is occurring, then remedial action such as rock vortex weirs or similar protection shall be carried out.	SR
2. Vegetation -- The District shall strive to minimize vegetation removal and shall revegetate sites as appropriate to provide erosion control and restore riparian habitat value.			
15	Minimize Stream Access Impacts	District personnel shall use existing access ramps and roads where possible. If new access points are necessary, they shall be constructed in a manner that minimizes impacts to streams: a) New access points shall be created as close to the work area as possible to minimize running equipment down stream channels. b) On temporary access points, remaining disturbed soil shall be compacted and re-vegetated as soon after construction as is horticulturally appropriate. c) New access points will be constructed so as to minimize adverse impacts, such as tree removal, whenever possible. d) If the access point is to be permanent, the road or ramp will have a gravel surface. e) Any temporary fill used for access shall be removed upon completion of the project. Channel topography and geometry shall be restored to pre-project conditions to the extent possible.	Both
16	Minimize Vegetation Removal	Vegetation control and removal in channels, on streambanks, and along levees and maintenance roads shall be limited to removal necessary for facility inspection purposes, removal that is necessary to meet regulatory requirements, removal that is required to comply with fire codes, and removal that is required to meet capacity requirements per Maintenance Guidelines.	Both

BMP	Title	Description	Activity
		1. The District has developed detailed Maintenance Guidelines to address the ongoing need for maintenance of vegetation or sediment in modified streams and channels. The guidelines are engineering-based and outline the level of maintenance required to ensure adequate flood protection capacity is maintained in the streams and canals within the District's jurisdiction. 2. Decisions regarding the necessity of routine sediment removal and vegetation management activities (to restore channel flow capacities) shall be made following the thresholds established in the guidelines. This information shall be used to formulate in part an annual routine maintenance work plan.	
3. Wildlife and Fisheries -- The District shall implement measures to minimize impacts to native species, especially special-status and riparian dependant species.			
17	Minimize Impacts to Special-status Plants and Animals Via Site Assessments and Avoidance Measures	To avoid and minimize impacts to special-status plant and wildlife species, the annual work program shall be reviewed, and each site where special status species have been found, have been known to exist in the recent past, or are likely to occur because suitable habitat exists, will be visited by a biologist or qualified personnel under the direction of a biologist. For animal species the site surveys will be no more than 30 days prior to the start of construction to determine presence of special-status species. For plant species the surveys will be conducted during the appropriate time of the year to determine presence. Information regarding the presence of special-status species on a particular worksite shall be based on the District's GIS database and professional experience of qualified staff. a) If maintenance activities are scheduled in the vicinity of extant populations, qualified personnel under the direction of a biologist will clearly identify the populations on site and stake or flag a buffer zone around the population in which activities are to be avoided. b) If sensitive animals such as western pond turtles or California red-legged frogs are found, a qualified biologist will remove them to suitable habitat outside of the project limits. Moving animals will be consistent with applicable Fish and Wildlife Service and Fish and Game permits. c) The results of all sensitive species surveys will be reported to the Fish and Wildlife Service and the California Department of Fish and Game in an annual report. All surveys will be reported to the CNDDB.	Both
18	Minimize Impacts to Breeding Birds Via Site Assessments and Avoidance Measures	Work will be conducted in a manner consistent with the protocols established by the most current version of the District's Nesting Migratory Bird Procedure: a) Project areas will be checked by qualified personnel under the direction of biologists for nesting birds prior to starting work if the work has the potential to impact breeding birds. b) If nesting birds are found, implementation of a project may be delayed until after nesting is completed. Work may occur if an adequate buffer, as determined by a qualified biologist, can be established between the maintenance activity and nests.	Both
19	Retain Woody Materials and Vegetation	Woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) will be retained unless it is threatening a structure or impedes reasonable access. 1. Retain and flag stumps, snags, and branches in channels that can create fish habitat. 2. Ensure that this woody debris does not impede water flow and does not contribute to erosion. 3. When woody material is removed, priority will be given to reuse of the materials in bank protection projects. Non-native species containing allelopathic compounds shall not be used for construction of bank protection projects. Woody materials may also be sued as mulch. 4. When retention will not compromise flood management system reliability, woody vegetation shall be left in place.	BP
20	Salvage Native	If fisheries or native aquatic vertebrates are present when cofferdams, water bypass structures, and silt barriers are to be installed, a fish and native aquatic vertebrate	Both

BMP	Title	Description	Activity
	Aquatic Vertebrates from Dewatered Channels	relocation plan will be implemented to ensure that fish and native aquatic vertebrates are not stranded: a) In non-tidal channels, where water is to be diverted, prior to the start of work or during the installation of water diversion structures, native aquatic vertebrates will be captured in the work area and transferred to another reach as determined by a qualified biologist b) Aquatic invertebrates will not be transferred (other than incidental catches) because of their anticipated abundance and colonization after completion of the repair work.	
21	Minimize Effects of Bypass Structures on Steelhead	To prevent increases in temperature and decreases in dissolved oxygen (DO), if bypass pipes are used, they shall be properly sized (i.e., larger diameter pipes to better pass the flows). Bypass pipes may also be avoided by creating a low-flow channel or using other methods to isolate the work area.	Both
22	Conduct In-Channel Work During the Dry Season	Avoid and minimize impacts to steelhead by timing stream maintenance projects in streams where there are or could be steelhead so that the use of heavy equipment in the channel is conducted outside of the migration and spawning season. a) Steelhead migration and spawning season is generally between December 15 to June 30.	Both
23	Remove Temporary Fills as Appropriate	Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be completely removed upon finishing the work, except where clean river run cobble/gravel was used. When appropriate, some or all of such material may be left in the channel to provide a substrate for aquatic species.	Both
24	Restore Riffle and Pool Configuration of Channel Bottom	The District shall re-grade the channel bottom at the end of the work project to as close to original conditions as possible. a) In areas used for migration by salmonids as designated on the District GIS Fisheries coverage, the depth and size of the low flow channel and pools shall emulate the pre-construction conditions as closely as possible, within the finished channel topography. b) In areas potentially used for spawning by salmonids as designated on the District GIS Fisheries coverage, spawning riffles impacted by channel maintenance activities will be re-created by placement of a suitably sized gravel-cobble mixture in a configuration that equals or exceeds the pre-project available area (see also BMP 22).	Both

4. Land Use and Public Safety -- The District shall minimize disturbance to the public and ensure public safety.

BMP	Title	Description	Activity
25	Notify Local Governments of Scheduled Work	Notify cities and the County of proposed work by submitting the Annual Work Plan to the Public Works Departments and the District's Zone Advisory Committee.	Both
26	Minimize Disturbances to Surrounding Neighborhoods	The District shall implement maintenance practices that minimize disturbances to neighborhoods surrounding work sites. a) In general, work shall be conducted during normal working hours. Extending weekday hours and working weekends may be necessary to complete some projects. b) Internal combustion engines shall be equipped with adequate mufflers. c) Excessive idling of vehicles will be prohibited. d) Levee traffic shall be limited to a speed of 15 miles per hour. e) Access roads shall be watered as needed to control dust. f) Dry sediment shall be wetted down or covered as needed to control dust during transport.	Both
27	Stabilized Construction Entrance	The District shall implement measures to minimize soil from being tracked onto streets near work sites: a) Methods used to prevent mud from being tracked out of work sites onto roadways	Both

SANTA CLARA VALLEY WATER DISTRICT
ENVIRONMENTAL RESOURCES MANAGEMENT UNIT

NESTING BIRD GUIDELINES 2000-2001

PURPOSE

To establish District guidelines for implementing stream stewardship policy as it relates to avian resources by describing the process and responsibilities of the District has regarding the *Migratory Bird Treaty Act of 1918* and other local, state and federal statues, ordinances and regulations, as they relate to nesting birds.

POLICY

It is the policy of the District to act as stream stewards by protecting the watersheds, streams and the natural resources therein. As part of its stream resources stewardship, the District recognizes that it has responsibilities for managing avian resources. Management of avian resources includes measures to protect birds, their nests, and eggs. This builds on the District's continuing efforts to improve stream resources and to comply with local, state and federal environmental laws.

SCOPE

This procedure provides guidelines to be followed by the District to protect birds nesting at district facilities and at District project sites. It defines the role and responsibilities of staff in planning, permitting, and implementing measures for managing avian resources. These measures facilitate the timely completion of District projects and activities while protecting avian resources.

DEFINITIONS

Project site. This includes all areas where District employees or contractors perform work. This includes, but is not limited to the area identified as the work site in project plans, access routes, staging areas, structures, and areas immediately adjacent.

Nesting areas. Birds nest in nearly all conceivable places and situations which, include open water, bare ground, stream banks, grass and weeds, cattails and bulrush, shrubs, trees, buildings, bridges, and drain pipes.

Nesting season. Nesting activity occurs in the Santa Clara Valley between February 1st to July 1st except in areas with tidal influence or emergent vegetation the season is extended to August 31. The peak of this activity is between March 15th and July 1st. Annual variation in climatic conditions can alter these periods by several weeks.

Active nest. An active nest is any nest structure, which is being used by adult birds and is at least ½ completed, contains eggs, or nestlings. Active nests also include permanent nest structures such as those made by herons, egrets, and birds of prey. Nests are considered active until young birds leave the nest and the immediate area surrounding the nest. Some birds may nest multiple times in the same nest within a season, nests of these species are considered active during nest construction, repairs or courtship behavior is observed.

Take of birds, their nests, eggs, or young. Under Migratory Bird Treaty Act, take is interpreted as the actual destruction of adult birds, their nests, eggs, or young. Penalties can include fines and imprisonment. The District will not knowingly conduct any activity that will lead to the take of live birds or active nests. District employees shall contact biologists and follow the guidelines described in *Protection of nests* (see PROCEDURES, below) when an active nest is known to be present or if one is encountered.

Biologist. A qualified biologist is a person properly trained in the detection of nesting birds within the habitat type being surveyed. The biologist will have knowledge of the identification, nesting habits and behaviors of local bird species. The biologist can identify local birds and their nests by sight. They should have recent experience conducting nest searches and be familiar with District breeding bird survey protocols (see ATTACHMENT B).

PROCEDURES

The District will attempt to protect avian resources through a series of steps in the course of a project. We will attempt to avoid impacts through avoidance of nesting areas and the *nesting season*. When this is not possible or not practical we will incorporate preventative measures in the project design. When *preventive measures* cannot be incorporated or there is the continued possibility of nesting birds, *pre-construction surveys* shall be conducted. If these measures fail and birds nest at a *project site*, actions shall be taken to ensure that the nest is not destroyed by district activities. If a nest is destroyed, it will be reported to appropriate agencies.

The *project site* will be considered to have an "active nest" if, the following conditions exist as determined by the biologist:

a. If the entire project site or structure can be visually inspected and a nest which is at least ½ completed is found or,
b. If the observer is unable to inspect the entire project site and "probable", or "confirmed" breeding behaviors are observed, and a second visit within one week detects "confirmed" behaviors (see ATTACHMENT C).
c. If the observer encounters Burrowing Owls displaying courtship behaviors.

Planning and Design

District biologists should be consulted early in the planning process to assess projects planned during the nesting season in and adjacent to channels, creeks, streams, reservoirs, floodplains, percolation ponds, pipelines, grasslands, roads and other outdoor facilities, for their potential impacts.

As part of the environmental review process site surveys should be conducted at the appropriate time of year by biologists. The environmental review process will identify potential impacts to avian resources and identify *preventive measures*.

The District Biologist should be informed of pre-construction meetings that pertain to activities that could impact avian resources and be informed of substantial changes made to the project work area or work involving removal of trees or brush.

Preventive Measures. When possible, projects with potential impacts to nesting birds should be scheduled before or after the *nesting season*. If this is not possible, *preventive measures* should be taken to reduce the possibility of nesting at the proposed work areas. Additionally, *pre-construction surveys* should be planned within 2 weeks before the initiation of work during the *nesting season*.

Preventive measures include any technique that will discourage birds from nesting at project sites or will remove potential nesting sites. This includes, but is not limited to, removal of vegetation that will be removed as part of the project prior to beginning the project and the use of deterrents to discourage birds from nesting.

District biologists and environmental planners should be consulted in the development of site and project specific preventive measures. Preventive measures will be described in environmental documents. Authorization to implement preventive measures may be needed from other agencies. In situations requiring site specific measures at the time of construction, project biologists will work with responsible field personnel to develop site specific measures. District personnel, construction contractors or a knowledgeable pest/animal control contractor should implement preventive measures.

If preventive measures are needed to prevent nesting, they should be in place and completed prior to February 1st. Responsibility for installation and removal of these measures will be described in writing by the project manager. All materials used in these efforts must be maintained to prevent nesting and removed when necessary to complete project activities. All materials will be removed from the site at the completion of the project.

Project Implementation

Pre-construction Surveys. A pre-construction survey is necessary under the following conditions:

a. If work is conducted during the *nesting season.*
b. If work involves removing or trimming large trees during the *nesting season.*
c. If nesting has been recorded before or after the *nesting season* in previous years at or near the site.
d. If work involves earthmoving operations, or the removal or trimming of vegetation during the *nesting season.*

Pre-construction surveys for nests should be performed within two weeks of the project start date by a Biologist or other appropriately trained personnel designated by the biologist (contact Biologist for necessary training requirements). The Biologist will report the findings to responsible field personnel. This will include descriptions, or maps of areas where work should be avoided as well as written descriptions of all measures that should be taken in order to protect the nests.

Pre-construction surveys for nests will be conducted according to the protocols described in Attachment B.

Protection of nests. What is required for the protection of active nests may vary depending on the situation and the species involved. This will be determined by the Biologist. These are general guidelines to be followed by the workers and responsible field personnel when a active nest is encountered:

a. Contact project biologists immediately.
b. Only authorized and permitted biologists should approach or touch the adults, nest, and eggs.
c. Until inspected by a biologist, a 50-foot radius should be established around the nest, a 250-foot radius in the case of hawks, owls, heron and egrets. The biologist may modify these perimeters once the site is inspected
d. If work must be done within this 50-ft radius prior to inspection by the project biologist, it should be limited to less than one-hour duration. The biologist may modify this schedule once the site is inspected
e. Responsible field personnel will inform workers of the presence of a nest and steps described above to avoid it.
f. In cases where birds build nests on a project site during project construction activities are taking place, the nest and its contents should be protected from destruction and the biologist should be contacted.
g. Project biologists, following site inspection may introduce additional measures to protect the nests. These measures must be approved by responsible field personnel.

These steps are initial steps that should be taken by the workers and responsible field personnel. The biologist may modify these steps and introduce additional measures to protect the nest if they are needed to ensure the adults and nest contents will not be destroyed.

For contracted projects, the biologists will discuss the situation only with responsible field personnel. It will be the responsible field personnel's responsibility to ensure that all guidelines are followed by District employees and contractors.

If a nest is destroyed. If a nest is destroyed, despite these measures, the nest and its contents should not be touched or moved. The biologist and project manager should be contacted immediately by responsible field staff.

ATTACHMENT A: DESIGN SPECIFICATIONS:

The following statements should be attached to contract design specifications.

No bird, their active nest, or eggs or will knowingly be harmed during the course of this project. If active nests, eggs or young are found at a project site a District biologist will be notified immediately and procedures outlined in *Protection of nests* (see NESTING BIRDS GUIDELINES 2000-2001) will be followed.

If an active nest or birds displaying behaviors indicative of nesting (see NESTING BIRDS GUIDELINES 2000-2001: ATTACHMENT C) are observed, protective measures outlined in *Protection of nests* (see NESTING BIRDS GUIDELINES 2000-2001) may be implemented to protect active nests and/or work will be delayed until the nest is complete.

A pre-construction survey should be conducted by a biologist if the project meets criteria described in *pre-construction surveys* (see NESTING BIRDS GUIDELINES 2000-2001).

District biologists shall be informed of pre-construction meeting which deal with issues pertaining to nesting birds.

If preventive measures are needed to prevent nesting, they should be in place and completed prior to February 1st. Responsibility for installation and removal of these measures will be described in writing by the project manager. All materials used in these efforts must be maintained to prevent nesting and removed when necessary to complete project activities. All materials will be removed from the site at the completion of the project.

ATTACHMENT B: BREEDING BIRD SURVEY PROTOCOL

- Sites should be checked within 4 hours of sunrise or within 2 hours of sunset. Exceptions to this are roads, gravel beds, grasslands, sites without vegetation, bridges, buildings, overpasses, and culverts.

- Surveys should not be conducted during periods of inclement weather, unusually warm or cold weather or when wind speed exceeds 12 mph.

- The surveyor should choose an observation area with a good field of view and complete Step 1. Observations should be made for a minimum of 15 minutes (for small sites with little cover), 30 minutes may be appropriate for more complex sites. The surveyor may need to do this several times depending upon the length of the site.

- After passive observation, the surveyor should walk the entire site and complete the species list.

- Once all potential breeders are identified and possible nesting sites located, the surveyor should proceed with step 2.

Step 1. General Species List

- List all species of birds found to the lowest possible taxonomic level.
- Identify and count each individual.
- Note any breeding behaviors (see *Breeding Codes*); take detailed notes.
- Describe locations of all breeding behaviors (see *Breeding Codes*).

Step 2. Search habitat using appropriate methods.

- Each habitat type is going to be different, the observer should determine what types of birds are at the site, then search appropriate locations for active nests (i.e. if Bullocks Orioles are found, inspect trees and tall shrubs for hanging nests, if Killdeer are found search gravel and dirt substrates for ground nests).

- For larger areas, the surveyor will identify likely nesting areas and searching them thoroughly. These include such areas as gravel bars, under man-made structures, trees, large shrubs, shelves on banks, cavities in banks and trees.

- For smaller sites, the observer may use a spotting scope to scan the entire potential nesting area.

- In Grasslands, the site will be searched by "rope dragging", "sticking" or "stalking." (see *Grassland Nest Survey Protocol*).

- When active nests are found, the observer will not approach the nest. They should attempt to: 1) identify what species the nest belongs to, 2) what stage is the nest at (eggs, nestlings, construction, incubating adult), and 3) map and describe the location of the nest. Additional notes such as number of eggs/nestlings and descriptions of the nestlings will be taken when possible, but the nest should not be disturbed to obtain information.

ATTACHMENT C: CRITERIA FOR DETERMINING NESTING STATUS

Possible (PO)

E

Individual(s) encountered in suitable breeding habitat within safe-date period. Be especially careful during the migration period (especially in riparian zones) not to count birds that may be passing through or birds anywhere that may linger in wintering areas.

S

Singing male encountered in suitable breeding habitat within safe-date period.

Probable (PR)

M

Multiple singing or territorial males reported within a project site within one day. (Indicate the number when you use this code: if you hear eight males singing, enter M-8 on the Field Card.)

A

Agitated behavior or anxiety calls from adult. (Do not include agitation which you induce by "pishing" or using taped calls.)

P

Pair observed in suitable breeding habitat within safe-date period. (Be aware that some species, e.g., ducks, may be paired during migration.)

T

Territorial behavior (chasing of individuals of same species) or singing male present at least two dates seven or more days apart. (Use caution for species such as raptors and hummingbirds that exhibit territorial behavior in defense of feeding areas, favorite perches, etc., while wintering or migrating.)

C

Courtship behavior (including food exchange) or copulation observed.

N

Visiting probable nest site (especially cavity nesters), with no further information obtained.

B

Nest building by Bewick's, House or Marsh wrens (which may build several nests before a female selects one), or excavation by woodpeckers (see NB below).

Confirmed (CO)

NB

Nest building, or a bird carrying nest materials (except for the above-mentioned wrens, and woodpeckers).

DD

Distraction display; defense of unobserved nest or young by injury feigning. A common behavior among ground-nesters (e.g., the Killdeer broken-wing display), and also includes active defense such as hawks diving at you. Does not include agitated behavior (Code A under PR above.)

ON

Occupied nest (nests in holes or banks, high nests, etc., where contents are uncertain). Indicated by adult entering or leaving nest site in circumstances indicating an occupied nest.

FL

Recently fledged young of species incapable of sustained flight or downy dependent young of limited mobility.

FS

Adult carrying fecal sac.

FY

Adult carrying food for young, or feeding recently fledged young. A bird feeding a fledgling cowbird confirms both the cowbird and the host.

NE

Nest with eggs, or with eggshells on ground. Use the same cautions as with code UN above. A nest with cowbird eggs confirms both the cowbird and the host.

NY

Nest with young seen or heard. Use when you can actually see the young, or if (as with cavity nesters) you only hear the young. A cowbird chick confirms both the cowbird and the host.

ATTACHMENT D: GRASSLAND BIRD SURVEY PROTOCOL (adapted from Grassland Research Project by Jennifer Nesbitt, University of Illinois at Champaign-Urbana)

A. Rope Dragging: Use this technique in fields with short to medium grass height and containing few, if any, shrubs. Two people drag a 50' or 30' foot rope across a field, an observer follows behind to watch for birds flushed from their nests. The rope passes directly over the low nest without harming either its contents or the incubating adult. This technique is most effective for species that will flush directly off their nests.

B. "Sticking": In fields with shrubs that will snag the rope, employ meter sticks as nest-searching tools. Observers walk back and forth across a field in a line, swinging the meter stick in an arc across the grass and gently prodding small shrubs. Human footsteps and the motion of the sticks serve to flush incubating birds. This method is effective for shrub-nesting species, hard-to-find species, and those species that also are found by rope dragging. For both of these search methods, a bird flushed off its nest will return to it soon after the observers leave the area.

C. Stalking: Some species will flush off their nest and run through the grass before they fly into the air. Often, these nests are well concealed and cannot be found without knowing their precise location. The best way to find these nests is to follow the birds. Feeding adults or an incubating female will reveal the location of a nest if they are watched patiently from a distance.

APPENDIX E

City of Palo Alto
Public Works Department

December 4, 2001

DEIR Comments for File

Mr. Eric Tsou
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

SUBJECT: Comments on Draft Environmental Impact Report
Matadero/Barron Remediation Project

Divisions
Administration
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Engineering
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650.329.2299 fax
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Operations
650.496.6974
650.852.9289 fax
Regional Water Quality Control
650.329.2598
650.494.3531 fax

Dear Eric:

Thank you for the opportunity to review the draft environmental impact report and engineer's report for the Matadero/Barron Creeks Remediation Project. I have prepared the following comments on behalf of the Public Works Department. I also routed the document to the Planning and Transportation Divisions for their review. Their comments have been incorporated into this letter, following the comments from Public Works.

Public Works Department Comments

1. Raising the northern floodwall at Matadero Creek station 101+00 will affect the security fencing at the City's Matadero Pump Station, as well as vehicular access to the station from the creek maintenance road. The project scope should be expanded to include modifications to the fencing and to the vehicular ramps to restore existing access to the pump station.

2. City staff has observed that the presence of sediment and vegetation in Matadero Creek downstream of Highway 101 impedes creek flow rates even during moderate storm events. The resultant increased water level causes backwater effects that impact local drainage facilities. Several gravity storm drains that flow into lower Matadero Creek stop draining when the elevated creek level closes the flap gates at the outfalls. Higher creek levels also increase the head pressure and run times for the Matadero Pump Station, located between Greer Road and Highway 101.

   Figure 3-6 indicates that the Matadero Creek low flow channel downstream of Highway 101 was originally 25 feet wide with an invert elevation of six (6) feet below sea level. Continued maintenance of the Matadero Creek low flow

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channel downstream of Highway 101 is a critical element in ensuring effective local drainage. Therefore, the maintenance standards for Reach 1 of Matadero Creek (Table 8-1) should be modified to require that the low flow channel be fully restored to its original dimensions once the maintenance thresholds are exceeded. Furthermore, the maintenance thresholds for Reach 1 should be modified to require sediment removal after accumulation of two feet (not four feet) of sediment. The EIR does not describe the impacts of allowing two additional feet of sedimentation beyond existing conditions in the low flow channel, nor does it justify this increased level of sedimentation as an appropriate maintenance standard. In addition, sediment surveys should be conducted as often as needed (not necessarily only once every four years as stated on page 8-5) to ensure compliance with the maintenance standards.

3. The report notes that approximately two feet of sediment has accumulated in the low flow channel since 1971 and that a sediment delta has formed at the entrance into the Flood Basin downstream of the City's Municipal Center. If the maintenance standard for Reach 1 of Matadero Creek is modified as proposed above, the existing condition of the low flow channel justifies immediate maintenance. Therefore, the project scope should be expanded to include the restoration of the low flow channel to its original width and depth, including removal of the accumulated material at the delta, in order to reduce the existing negative impacts to local drainage. Removing the accumulated sediment as part of the project will ensure that the creek complies with the maintenance standards right from the start.

4. The visual and aesthetic impacts of the raised floodwalls are a significant concern to Palo Alto residents. The City strongly supports the District's efforts to gain approval from FEMA to relax their standard freeboard requirements based upon Schaaf & Wheeler's risk-based analysis. Relaxation of the freeboard standard would allow the floodwall heights to be reduced. The City also supports the District's proposal to use form liners to cast an aesthetic pattern into the concrete floodwalls or use of other aesthetic treatments to minimize the visual impacts of the walls.

5. The City's storm drainage master plan recommends construction of a new pump station to discharge the flow from an existing 96" storm drain into San Francisquito Creek just downstream of Highway 101. The District-owned parcel adjacent to the International School, which is proposed for use as a mitigation site for the Matadero/Barron Remediation Project, may be an ideal location for this proposed pump station facility. The District is seeking to route a section of the Matadero overflow bypass channel across the City-owned Municipal Service Center (MSC). Compensation for use of the City-owned land is yet to be negotiated. The City would like the District to consider the concept of exchanging a portion of the "International School site" for an equivalent square footage of the MSC property. Details of the land exchange would be subject to future negotiation and mutual agreement.

6. The proposed overflow bypass channel downstream of Highway 101 would be constructed within an easement granted to the District by the City. The underlying land parcel is a dedicated park known as the City-owned Baylands. In accordance with the Palo Alto Municipal Code, any significant improvements to a dedicated park require City Council approval through adoption of a park improvement ordinance. The zoning of the parcel (Public Facility with Site and Design district overlay) requires that any development on the parcel is subject to the Site and Design review and approval process. This process includes review by the Planning Commission and Architectural Review Board (unless waived by City Planning Department staff) in addition to approval by City Council. The proposed overflow bypass channel and any related construction within the City-owned Baylands parcel will require the approval of a park improvement ordinance by the City Council and will be subject to the Site and Design review process.

7. The design of the overflow bypass channel should be modified to include installation of a landscaping buffer/screen between the Municipal Services Center and the channel.

8. On Barron Creek upstream of Louis Road, the 30"-high floodwall on the right bank extends several hundred feet beyond the floodwall on the left bank (see attached photo). This issue was raised by a member of the public at one of the

early community outreach meetings for the Matadero/Barron Creeks Remediation Project, but has never been satisfactorily explained by District staff. It appears that the current situation results in differing levels of flood protection for the residents on the two sides of the creek. The Engineer's Report/EIR should address this issue and offer a resolution.

9. Change third bullet on Page 1-5 of the Engineer's Report to read: "Channel capacity downstream from Highway 101 was ~~underestimated~~ overestimated".

10. The project objective, as stated on Page 6-6 of the Engineer's Report, is "to reduce one-percent backwater at Highway 101 from the "no project" condition, which is 7.4 feet NGVD, to less than 6 feet NGVD, thereby restoring the downstream conveyance assumed in the 1988 Engineer's Report." On Page 6-8, the hydraulic performance of the overflow bypass is stated as follows: "At the peak of Matadero Creek's one-percent discharge hydrograph, the backwater elevation at the downstream face of East Bayshore Road would be 5.7 feet NGVD. When PAFB stage is at a maximum (and the creek flow rate is 1,250 cfs), the downstream backwater would reach and elevation of 6.6 feet NGVD." Based on these projected results, does the overflow bypass channel achieve the stated project objective?

Transportation Division Comments

Regarding Permanent Transportation Impacts:

1. The EIR needs to evaluate the impact of the Louis Road bridge raising on sight distance for Louis Road drivers. This does not seem to be included.

Regarding Temporary Construction Impacts on Transportation:

2. SCVWD will have to determine truck routing and have it approved by the City.
3. The EIR states that trucks will be passing Ohlone School, but that school is not on Louis Road (page 102). This is identified as a significant temporary impact. The EIR needs to clarify this.

4. The mitigation of the impact of truck traffic on school children by having additional crossing guards seems reasonable (page 106). However the mitigation needs to require the SCVWD to pay for the crossing guards. It is not clear whether these crossing guards would be on Louis or in front of the school (see related comment 3 above). This muddled discussion needs to be clarified.

5. Closing Louis Road would potentially significantly impact the walking and bicycling routes of school children, as they cannot as easily use detours as can vehicle traffic. The EIR needs to quantify the impact of the closure on this group of road users.

6. The EIR needs to quantify the amount of traffic diversion to side streets and evaluate whether or not the impact would be significant.

7. The EIR needs to evaluate a construction alternative that does not involve full closure of Louis Road, in order to avoid the disruption to school traffic and normal vehicle traffic on Louis.

8. SCVWD will have determine a traffic detour and signage plan and have it approved by the City.

Planning Division comments

1. **Inadequate mitigation for loss of willow riparian habitat.** The proposed project would construct a 60-foot-wide concrete channel in the Baylands extending approximately 1500 feet along Matadero Creek downstream of East Bayshore Road and continuing southeast between the north side of the MSC and the Baylands. The proposed project would destroy 1 acre of willow riparian habitat, which represents over 30% of the existing 3.18 acres of well developed riparian habitat adjacent to Matadero Creek below Highway 101. The proposed mitigations do not make up for such a significant loss. The proposed on-site mitigation area next to East Bayshore Road will be an isolated pocket, separated from Matadero Creek by the proposed new 60 feet wide concrete channel and bounded on the other two sides by the MSC and East Bayshore Road. The

proposed mitigation area at the International School is located outside the Matadero Creek watershed, and it is not adjacent to the creek where it is located, San Francisquito Creek, but rather is separated from the creek by an access road. According to the DEIR, these new mitigation areas would not begin to provide the values of mature riparian forest until approximately 8 to 10 years after planting. (DEIR, pages 70, 72; Biological Resources Section, pages 6, 7, 30, 31)

2. **Rejection of the environmentally superior alternative.** There does not appear to be adequate basis to reject the environmentally superior alternative, the Underground Bypass Alternative, for the project Downstream of Highway 101.

- The environmentally superior alternative impacts less that half the habitat area as the proposed alternative, and this impacted habitat is located in a less environmentally significant area adjacent to East Bayshore Road, rather than deep into the Baylands as in the proposed project. Also, it may be possible to mitigate most or all of this habitat loss on-site by restoring the areas now occupied by Eucalyptus and Ruderal (degraded) habitats, rather than outside the watershed as in the proposed project. The Underground Bypass would be located almost entirely outside the Baylands, so these degraded areas which would be replaced by the 60 feet wide concrete channel in the proposed project, would be available as mitigation areas in the environmentally superior alternative. (DEIR pages 116, 117)

- Contaminated soil and groundwater located along the northern property line of the MSC would be avoided in the environmentally superior alternative. This would completely eliminate the significant hazardous materials impact created by the proposed project. (DEIR, page 120)

- The additional cost of the environmentally superior alternative, appproximately $7,000,000, is within the total $24,000,000 budget allocated for this project, and is far below the $40,000,000 established as the order-of-magnitude cost criterion for alternative feasibility. (Draft Engineer's Report, page 4-2, 6-18, 6-24)

- The significant environmental impacts of the proposed project, although technically mitigated, represent extensive and permanent changes to the Baylands habitat, while the impacts of the environmentally superior alternative are largely temporary. Although the impacts created by the Underground Bypass are substantial (temporary circulation issues, relocating utility lines, and more difficult and expensive future maintenance), these impacts are mitigatable and the Underground Bypass is presented as a feasible alternative that meets the objectives of the project. (DEIR page 117)

3. **Palo Alto Comprehensive Plan**. The environmentally superior alternative, the Underground Bypass, would be more consistent with the goals, policies and programs of the 1998 Palo Alto Comprehensive Plan, particularly: Goal N-2, which identifies "the city's desire to conserve pristine riparian corridors; reestablish corridors that have been diminished by flood control culverts, concrete channels, and other disturbances; and prevent further degradation of the creek environment;" Policy N-9, Avoid fencing, piping, and channelization of creeks when flood control and public safety can be achieved through measures that preserve the natural environment and habitat of the creek; and Policy N-11, Preserve the integrity of riparian corridors.

4. **Pursue Enhancement No. 2.** The presentation of enhancement opportunities pursuant to the District Board's Ends Policy of improving the environmental quality of streams and environmental resources in its jurisdiction, is an important positive contribution and should be pursued. Enhancement No.1, create a recreational path, may have limited value since the path would be located between the proposed new concrete channel and the MSC fence and would not connect to the trail system. Enhancement No. 2, restoration of Matadero Creek downstream of Highway 101 to a more natural riparian habitat, would be a valuable improvement in this important habitat and should be implemented. Enhancement No. 3, Restoration of Mayfield Slough, appears to be more uncertain, but continued investigation of feasibility would be desirable.

Thank you for the opportunity to comment on the Draft Environmental Impact Report and Engineer's Report for the Matadero/Barron Creeks Remediation Project. I look forward to working with you and other District staff to implement a successful

California Regional Water Quality Control Board
San Francisco Bay Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov
1515 Clay Street, Suite 1400, Oakland, California 94612
Phone (510) 622-2300 • FAX (510) 622-2460

Gray Davis
Governor

Date: December 14, 2001
File No. 2188.07 (PFA)

Mr. Eric Tsou
Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Subject: Comments on the Draft Environmental Impact Report for the Matadero/Barron Creeks Remediation Project (Project)

Dear Mr. Tsou:

Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR) for the subject project and for extending the comment period to December 14, 2001 to accommodate the San Francisco Bay Regional Water Quality Control Board (Regional Board) request. Upon the request of the Santa Clara Valley Water District (District) the DEIR has been reviewed and written comments provided by the December 14, 2001 extended deadline.

Several alternatives were considered for the upstream and downstream reaches of the Project. The District has considered several relevant factors in their alternatives including meeting project objectives, minimizing environmental impacts, feasibility, and cost.

Preferred Alternative

The Preferred Alternative proposes to modify parts of Matadero Creek to achieve 100-year flood protection standards of the Federal Emergency Management Agency (FEMA). According to engineering analysis, Matadero Creek will not currently meet these standards.

Matadero/Barron Creeks are located in the City of Palo Alto, and drain into the Palo Alto Flood Basin (PAFB), which flows into San Francisco Bay. The project reach is a 1.7-mile section between Alma Street upstream and the PAFB downstream. The Preferred Project alternative would involve the following modifications to Matadero Creek:

- Replacement of Louis Road Bridge,
- Modification of channel upstream and downstream of Louis Road,
- Raising floodwalls and headwalls,
- Construction of an overflow bypass along the edge of the City's Municipal Services Center.

Impacts include 0.1 acre of wetland habitat within the willow riparian habitat area downstream of Highway 101 and 0.97 acre of riparian habitat in the footprint of the proposed bypass channel. Mitigation for impacts includes 2:1 in-kind wetlands creation on-site and 3:1 in-kind riparian creation both on- and off-site. Due to current constraints, 0.37 acre or riparian area would be created on-site and 2.54 acres would be created off-site at one of four locations. Mitigation should be in-kind and on-site whenever possible. When constraints exist, mitigation should be designed and located so that impacts are most appropriately and directly compensated for.

Efforts have been made by the District to reduce impacts to the existing habitat downstream of Highway 101 by building an overflow bypass channel. Concerns raised by this alternative include impacts to existing wetland and riparian habitat and the lack of on-site mitigation opportunities for riparian, exposure of soil contaminated with petroleum hydrocarbons, sedimentation in the natural channel below the diversion inlet during bypass events, and impacts to existing habitat in the Palo Alto Flood Basin due to bypass discharge events.

Concerns raised by the preferred upstream alternative include impacts to beneficial use defined as REC-2 or Noncontact Water Recreation due to elevation of existing floodwalls and headwalls along the channel.

According to the San Francisco Bay Basin Water Quality Control Plan (Basin Plan), the following beneficial uses are designated as existing for Matadero Creek:

- COLD – COLD FRESHWATER HABITAT
- MIGR – FISH MIGRATION
- REC-1 – WATER CONTACT RECREATION
- REC-2 - CONCONTACT WATER RECREATION
- SPAWN – FISH SPAWNING
- WARM – WARM FRESHWATER HABITAT
- WILD – WILDLIFE HABITAT

The District does not refer to impacts to REC-1 and REC-2 as part of their beneficial uses described on pages 17 and 18 of the DEIR. The District should consider impacts to all beneficial uses designated for Matadero Creek as part of their environmental analysis.

Other Alternatives

Of the alternatives discussed, further discussions of the Emily Renzel Marsh Flood Storage, Off-Site Storage, and Expanded Floodway Alternatives are requested. It is understood that these alternatives may not be feasible as stand-alone projects but consideration should be given to combining these alternatives if it could provide adequate flood storage and long-term benefit to the Matadero Creek Watershed.

Environmentally Superior Alternatives
Based on the information reviewed in the DEIR, the underground bypass and the U-frame channel modification from Greer Bridge to Alma Street are the environmentally superior alternatives. These alternatives reduce impacts to biological resources, avoid contaminated soils in the footprint of the proposed bypass channel, and reduce visual impacts by reducing floodwall and headwall extensions. Furthermore, impacts could be mitigated on-site. For these reasons, it would be appropriate to support the approval of the environmentally superior alternative over the preferred alternative.

Alternative modifications to Matadero Creek upstream of Highway 101 involving reconfiguring the existing maintenance road and right-of-way to increase channel capacity and reduce flood wall and headwall elevations should be discussed.

The District will need to develop a plan to characterize excavated material to ensure that contaminated soil and sediment is disposed of properly and that residual soils are not contaminated.

A site visit and presentation of the alternatives by District staff as well as an opportunity to discuss the comments in this letter would be greatly appreciated.

Please contact me at (510) 622-2429 or by email at pa@rb2.swrcb.ca.gov.

Sincerely,

Paul F. Amato
Environmental Specialist

STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, *Governor*

DEPARTMENT OF TRANSPORTATION
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November 19, 2001

SCL-101-52.17
1987122908
SCL101692A

Ms. Melissa Dargis
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Dear Ms. Dargis:

Matadero/ Barron Creeks Remediation Project – Draft Environmental Impact Report (DEIR)

Thank you for including the California Department of Transportation in the environmental review process for the proposed project. We have examined the DEIR and have the following comments to offer:

There are a number of existing State-owned storm drainage facilities that outlet to Matadero and Barron Creeks at the State Route 82 (El Camino Real) and U.S. Highway 101 crossings. The proposed creek channel lining improvements should accommodate existing State storm drainage facilities.

We would also like the opportunity to review the project plans as they progress so we can ensure that our bridges and storm drainage facilities are addressed in the design of the proposed project.

Should you require further information or have any questions regarding this letter, please call Maija Cottle, of my staff at (510) 286-5737.

Sincerely,

RANDELL H. IWASAKI
Acting District Director

By Jean CR Finney

JEAN C. R. FINNEY
District Branch Chief
IGR/CEQA

c: Katie Shulte Joung (State Clearinghouse)

-----Original Message-----
From: Maija_Cottle@dot.ca.gov [mailto:Maija_Cottle@dot.ca.gov]
Sent: Tuesday, December 04, 2001 3:19 PM
To: melidarg@scvwd.dst.ca.us
Subject: Matadero Creek Remediation Project EIR

Hello Melissa,

In order to complete our review of the draft EIR our Structures Hydraulics branch would like to review the following information as soon as possible.

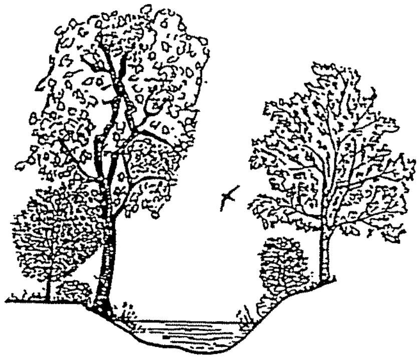
A copy of the hydraulic model for the US Highway 101 bridge at Matadero Creek.
Scour analysis for the US 101 bridge, as well as "before" and "after" project water surface elevations and channel velocities.

In addition, although there is hydrology information in the EIR, the report does not state the hydraulic effects as a result of the proposed project to our State Bridge.

If you have any questions regarding this request I can be reached at (510) 286-5737.

Maija Cottle
California Department of Transportation
Transportation Planning B
IGR/ CEQA

SANTA CLARA COUNTY
STREAMS FOR TOMORROW
Post Office Box 1409
San Martin, California 95046



November 19, 2001

Mr. Eric Tsou
Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Dear Mr. Tsou:

Comments on the Draft Environmental Impact Report for the Matadero/Barron Creeks Long-Term Remediation Project

We have the following comments for your consideration on the Draft Environmental Impact Report (DEIR) for the Matadero/Barron Creeks Long-Term Remediation Project (Project). Our comments focus on a single issue - mitigation for losses of riparian habitat.

The DEIR identifies that willow riparian habitat along Matadero Creek downstream of Highway 101 will be adversely effected by implementation of the proposed Project, and this effect would be a significant impact pursuant to the California Environmental Quality Act (CEQA). Although the District would employ impact avoidance and impact minimization measures, an unavoidable loss of riparian habitat would occur as a result of constructing the overflow bypass channel and sediment basin. The District has calculated a riparian habitat compensatory mitigation requirement of 2.91 acres.

The District has chosen to provide the required riparian habitat compensatory mitigation solely by creating new riparian habitat, which would be created predominately at off-site locations. However, alternative/additional mitigation measures exist, as evidenced by the identification of "Enhancement No. 2 - Restoration of Matadero Creek downstream of Highway 101 to a more natural riparian habitat" (DEIR pages 12 to 13). Although presented as a possible enhancement opportunity pursuant to District Board policy and not part of the proposed Project evaluated in the DEIR, this on-site riparian habitat restoration proposal does represent an additional, valid mitigation measure to address Project impacts to local riparian habitats.

The purpose of compensatory mitigation is to offset unavoidable impacts by replacing lost habitat functions and values. For the Project, the purpose of riparian habitat compensatory mitigation is to replace existing riparian habitat functions and values on lower Matadero Creek that will be adversely impacted by construction of the overflow bypass channel and sediment basin.

Resource and regulatory agencies generally place highest priority and preference on "in-kind, on-site" mitigation alternatives. Such compensatory mitigation seeks to restore or duplicate the physical nature of the habitat lost and to accomplish this within or adjacent to the project site where the unavoidable impact occurred.

This "in-kind, on-site" approach tends to assure that (1) the habitat restored or created is essentially identical to that which was lost; (2) the mitigation actually benefits the local fish and wildlife species and populations adversely effected at the project site; (3) the mitigation contributes to maintaining local fish and wildlife population levels; and (4) the mitigation contributes to a greater degree of certainty that the ecological benefits provided by the remaining habitat in the project area are retained.

The Project proposes to provide only 0.37 acre of riparian mitigation (riparian habitat creation) within and adjacent to the project area on lower Matadero Creek. This would be on-site, in-kind mitigation. The remaining 2.54 acres of riparian mitigation is proposed as "Off-site Mitigation" at locations on San Francisquito Creek, Hale Creek, and/or upper Matadero Creek. According to the DEIR, the preferred location for off-site mitigation is San Francisquito Creek. None of the off-site locations are large enough to accommodate all of the remaining mitigation acreage; therefore, at least two off-site locations will be necessary to satisfy the riparian mitigation requirements of the Project.

Thus, as described in the DEIR, only 13 % (0.37 acre) of the Project's riparian mitigation will be on-site mitigation benefiting the local fish and wildlife resources impacted by the Project. The remaining 87 % of the Project's riparian mitigation will be off-site mitigation dispersed at two or more sites in different watersheds and/or in upper reaches of the stream, where the mitigation will not directly benefit the local fish and wildlife populations actually effected by the Project.

This scenario of off-site mitigation comprising 87 % of the Project's riparian habitat compensatory mitigation would be reluctantly acceptable if no feasible on-site alternative mitigation measures were available. However, this is not the case. Restoring riparian habitat functions and values along the lower Matadero Creek riparian corridor downstream from Highway 101 as described in "Enhancement No. 2" is a feasible and desirable alternative/additional mitigation measure - a measure that would provide priority, preferred on-site, in-kind mitigation.

Restoration of lower Matadero Creek would improve riparian functions and values in this area by removing all non-native vegetation and replanting the exposed areas with native vegetation. This restoration effort would improve riparian functions and values in a reach of stream described in pre-project context as representing "fairly high-quality wildlife habitat due to the dense nature of the vegetation, the presence of a well-developed understory, and its bayside location." (DEIR page 41).

Restoring riparian functions and values by removing exotic plant species and replanting with native vegetation is a well accepted mitigation measure to compensate for impacts to riparian habitats. In fact, the District has employed exotic plant removal as compensatory mitigation for Stream Maintenance Program impacts to riparian vegetation, whereby loss and degradation of riparian vegetation - loss of riparian functions and values - is mitigated by removal of exotic giant reed within riparian corridors.

Habitat restoration has advantages over creating new habitat. Restoring habitats degraded by invasive exotic plant species utilizing proven techniques increases the likelihood of successful mitigation, builds upon an existing baseline of physical, chemical and biological

The DEIR does not consider all reasonable and feasible on-site mitigation measures which would substantially lessen the significant effects of the Project on important local riparian habitat functions and values. As a result of this deficiency, on-site mitigation comprises only 13 % of the Project's riparian habitat compensatory mitigation, whereas the great majority of this mitigation (87 %) is dispersed to multiple off-site locations.

The Final EIR must maximize on-site riparian mitigation by including lower Matadero Creek riparian restoration in the Project's identified riparian habitat compensatory mitigation requirements.

Riparian habitat restoration is a valid and feasible mitigation measure. Pursuant to CEQA Guidelines Section 15126.4(a)(1)(B), "Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified." The Final EIR must include this discussion and determination in the event riparian restoration is rejected as mitigation and not incorporated into the Project's mitigation requirements. We are not aware of any valid justification for rejecting on-site restoration as a Project mitigation measure.

Like all concerned members of the public, Santa Clara County Streams For Tomorrow relies on the District's environmental document for an accurate and thorough assessment of the Project's likely impacts and identification of effective mitigation measures. For the reasons stated in this letter of comment, we believe the DEIR is flawed regarding mitigation of riparian habitat impacts. Therefore, we recommend against certifying the DEIR until the concerns and recommendations presented in this letter of comment have been fully addressed in a revised environmental document.

Thank you for the opportunity to comment on the subject DEIR. If you have questions about our comments, please contact me at the letterhead address or telephone number (408) 683-4330 (voice and fax).

When available, please send us a copy of your response to comments document and draft Final EIR. Also, please send us timely notice of any public meetings or hearings on the Project and/or the EIR.

Sincerely,

Keith R. Anderson

Keith R. Anderson
Environmental Advocate

cc: Mr. Jeffrey Lawson
Attorney at Law
Silicon Valley Law Group

November 30, 2001

File No. 22-51004
Letter #25

Mr. Eric Tsou
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

Re: Matadero Creek Remediation Project
Draft EIR/ER Comments

Dear Mr. Tsou:

Mark Thomas & Co. has reviewed the draft Environmental Impact Report/Engineer's Report and in general, there are a few inconsistency issues with respect to the report. The front portion of the EIR recommends how to achieve the project objectives. However, some of the items in this portion are either not clear or do not coincide with the conclusion of the engineering study in Appendix B. The specific comments are as follows:

- One of the main objectives of the project is to "obtain a letter of map revision from FEMA to remove the existing flood prone areas from the Flood Insurance Rate Map...". However, the Engineer's report (Page 4-8) mentions that since the flood basin levees do not meet FEMA standard and will not be upgraded to conform to this standard through this particular project, "areas currently mapped within the one-percent tidal floodplain will remain so mapped". There is some confusion between what areas are being helped by this project.

- Page 6 of the EIR describes the channel modifications upstream and downstream of Louis Road. The modifications include replacing the trapezoidal channel with a U-shaped channel extending approximately 65 feet under Louis Bridge, a 40-foot transition upstream and a 20-foot transition downstream (125 feet total). Later in the report, on page 61, the modification is specified as approximately 120 feet in length.

- The EIR states that the bypass channel would be constructed within the District's right of way along the North and Southeast edges of the MSC (page 5). However, on some of the figures, it appears as if the bypass channel may cut into the MSC property on the NE corner (Figure 10 on page 74). The engineer's report also states that this bypass channel will require 0.16-acre right-of-way acquisition from the MSC.

- Under Enhancement No. 1 on page 12, the EIR states that the "proposed bypass channel requires a 3-foot tall floodwall on the western edge of the channel". However, this requirement is not mentioned elsewhere (such as on page 5 or 6-14) when describing this alternative. On pages 6-8 and 7-5 of the Engineer's report a proposed vertical wall or levee around the MSC is described, but the connection between the two statements is unclear.

- Would the enhancement trail, benches and vegetation/visual enhancements be placed within the 10-foot construction buffer zone of the proposed bypass channel? The EIR states that it will be placed "between the floodwall and the fence of the MSC boundary" (page 12). However, Figures 4 on page 8 and 6-5 on page 6-15 shows the floodwall abutting the MSC and does not show the construction buffer zone.

- The overflow bypass channel cross-sections shown in the EIR are inconsistent. In general, the bypass channel is described to be 60 feet in width, with a 10-foot construction buffer on each side. However, Figure 6-5 on page 6-15 shows a cross-section with a width of 58 feet and does not show the construction buffer zone. Figure 4 on page 8 of the EIR, while nearly identical to Figure 6-5, shows a bypass channel width of 60 feet. In addition, Figure 7-2 on page 7-6 shows a 50-foot channel section with a 10-12 foot construction zone, but does not show a floodwall.

- There is some confusion between two separate statements in the EIR regarding relaxing FEMA's freeboard requirements. Page 9 of the EIR states that "If the freeboard criteria can be relaxed, the required wall heights between Greer Road and Louis Road might be reduced to 5.3 feet". The statement on page 99 is "If the freeboard criteria can be relaxed, the required wall heights could be reduced by up to 5.3 feet in the most optimistic case." To 5.3 feet and up to 5.3 feet are very different statements.

- The EIR doesn't mention anything about the new warped transition that will be constructed on the south channel back at the downstream face of the Alma Street/SPRR culvert and the improvements to an existing 84-inch diameter storm drain outfall as part of the project. The first time it is mentioned is in the Engineer's report (page 7-1).

If you have any questions or require further information, please call me.

MARK THOMAS AND CO. INC

Steven Machida

cc: Richard Tanaka

2 November, 2001

To Whom It May Concern:

Here are my suggestions or concerns about the Matadero/Barron Creek project.

A) On the inside of the creek install ladders ever 500 feet. This will serve several purposes.

1. Safety first. They will allow easy and fast escape in case of emergency. If someone gets hurt in the creek, or caught in rising waters, then speed is important.
2. Birds need some perches near the water. Phoebes in particular like to perch low and close to the water to catch insects.
3. The suggestions for the steps: either molded (i.e. recessed) foot holds built into the walls. Or, the steps could be made out of reinforcement bar bent into a U shape and projecting out.

B) A few perches designed for Kingfishers. There are several resident ones. They currently use the occasional wire that crosses the creek. Maintain a nesting area for the Kingfishers.

C) No design or pattern on the flood wall. This requires less maintenance and the style won't go out of date.

D) Create a path from West Bayshore to Alma along the creek. This will allow bicyclist and pedestrians to get off our crowded and less safe streets where far too many people get injured by cars. This will complement Palo Alto's Bryant St. bicycle boulevard in that it would be in a perpendicular direction.

E) Create cracks or crevices along the bottom edge of the outside wall for Western Fence Swifts, or salamanders to hide in.

Sincerely,
John P. Nichols
John P. Nichols
951 Maddux Drive
Palo Alto, CA 94303
Day 408/342-4014
Eve 650/858-2682

Johnpnichols@pcumail.com

P.S. I have personally seen both Slender Salamanders and Arboreal Salamanders along Matadero Creek behind my house at 951 Maddux. The report you have says that they are only suspected as being there.

SCVWD '01 DEC 4PM 4:14

December 3, 2001

Mr. Eric Tsou, Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

Dear Eric Tsou,

The Draft Environmental Impact Report (DEIR) for the Matadero/Barron Creeks Long-Term Remediation Project has concerns for me as a member of the Santa Clara Valley Chapter of the California Native Plant Society in that it will result in permanent loss of a third of the Matadero Creek baylands riparian corridor.

This riparian corridor contains valuable native trees such as California buckeye, cottonwood, maple*, walnut and willow. Historically it meandered to such a degree in this baylands marsh region as to establish a full riparian woodlands the width of 150 to 250 feet.

The understory freshwater vegetation was noted in the 1976 Engineer's Report for the flood basin to be hastata, or fat hen, coyote brush, horseweed, barnyard grass, spearmint, sickle grass, California blackberry, pickleweed, prairie bulrush, alkali marsh butterweed, cat-tail and cocklebur. Many of these species are readily visible, along with non-native invasives. This is still a very worthwhile wetland vegetation community and not to be easily replicated.

The rationale for this floodway bypass is not so fully documented to make me feel that this intrusion into the riparian wetlands of the flood basin is necessary. As designed this bypass will result in a permanent removal of up to 75 feet in width of this vital riparian habitat, for over a third of a mile. This is a loss that can not be mitigated for in kind or in place. Consideration of uplands, behind a raised San Francisquito levee, to mitigate for wetlands lost on Matadero Creek is not a viable alternative.

Thank you for consideration of my concerns on this project as proposed.

Sincerely,

Ellie Gioumousis

Ellie Gloumousis
992 Loma Verde
Palo Alto, CA 94303

* Acer sp.

PS Please note that this remnant riparian corridor is all that is left of any Matadero Creek woodlands and wetlands for the entire length of the project.

SCVWD '01 DEC 4PM 4:14

Subj: **(no subject)**
Date: 12/3/01 9:58:38 PM Pacific Standard Time
From: JLucas1099
To: EricTsou@scvwd.dst.ca.us

December 3, 2001

Mr. Eric Tsou, Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

Dear Eric Tsou,

In response to the Draft Environmental impact Report (DEIR) for the Matadero/Barron Creeks Long-Term Remediation Project, there are concerns that our Santa Clara Valley Chapterof the California Native Plant Society has in regards this loss of a considerable portion of the Matadero Creek baylands riparian corridor.

The Palo Alto Flood Basin is City of Palo Alto parkland and historically has been managed as a baylands preserve to provide habitat for the extensive birdspecies that feed and nest there, as well as for the migratory waterfowl of the Pacific Flyway. Its use as a flood management retention basin has been quite compatible with thissuccessful preservation of a range of unique habitats.

The riparian corridor includes such native vegetation as California buckeye, cottonwood, maple, walnut and willow. The historic corridor was established along the Matadero Creek meander, as seen in the attached exhibit from the September 1976 Engineer's Report and Final EIR for the Palo Alto Flood Basin. As constricted by the levees on either side, this meander goes from a 250' width, just downstream from #101, to 150' as it empties into the flood basin.

The understory vegetation has such natives as coyote bush, California blackberry, cat-tail, and prairie bulrush. Three plants found here are associated specifically with salt marshes: pickleweed, alkali marsh butterweed, and fat hen. This wetlands community would be hard to replicate in uplands on San Francisquito Creek.

We are opposed to degradation and loss in this riparian corridor, especially at the narrow end of this former meander as Matadero Creek enters the open flood basin. As designed, this flood bypass will result in a permanent loss of up to a 75' width of this vital riparian habitat for over a third of a mile. This loss can not be mitigated.

Sincerely,

Don Mayall
531 Alger Drive
Palo Alto, CA 94306

SCVWD '01 DEC 4PM 4:14

December 3, 2001

Mr. Eric Tsou, Project Manager
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

Dear Eric Tsou,

In regards the Draft Environmental Impact Report (DEIR) for the Matadero/Barron Creeks Long-Term Remediation Project, I have major reservations about this flood control project. I do not feel that it respects the integrity of the Palo Alto flood basin design nor does it provide the watershed management principles for an integrated system for optimum preservation of beneficial uses of Matadero Creek.

Initially, one must review the constraints of the project area. The 5.5 feet of ground subsidence has placed Palo Alto residences near Bayshore in a floodprone zone not of their own making. U.S.G.S warned authorities of this deteriorating condition for some thirty years before any remedial action was taken and pumping of groundwater restricted. The District and the City of Palo Alto have a strong vested interest in preventing flooding both now and in the future in this area.

The region of the Palo Alto Flood Basin, bordered on the northwest by Mayfield Slough and on the east by Charleston Slough, was the historic marshlands of Matadero Creek as it wound its way to San Francisco Bay. Please see exhibit A. Barron Creek appears to have joined with the main stem of Matadero upstream. Permanente Creek had its own slough and outlet to San Francisco Bay as did San Francisquito Creek and Stevens Creek. Do you agree on these historic conditions?

The Permanente Creek watershed is now portioned out between Adobe and Stevens Creeks. So, now, the Matadero Creek basin receives Adobe Creek flows as well as much of Permanente Creek's. The 5.5 foot subsidence was helpful for retention basin purposes for Palo Alto, but the contribution of flood flows from Black Mountain and the Monte Bello Ridge is more than likely to overwhelm the basin. It is in this area of watershed management that this EIR is deficient in that it does not address this cumulative flood flow problem? Have I missed this data?

In one hundred year flood conditions, with high water in San Francisco Bay, the Palo Alto Flood Basin would have its tidal gates closed to tidal action, and a storm event of 72 hour duration would probably result in a full flood basin that would most likely result in backwater to Matadero Creek? The proposed bypass channel would not provide any relief? This needs analysis. Where is this support data in this EIR?

The hydrologic data on San Francisquito Creek is important in that it was the surface sheet flows of San Francisquito that reached the low lying residences east of Oregon Expressway and backed up by Bayshore and the soundwall (and non-functioning #101 drainage conduits)? The Matadero Creek street flooding was due to street drains not being able to empty into the high flowing Matadero Creek? These sources of floodwaters need to be identified in this document in order to assess the best remedial actions, or at least appropriate actions? If the San Francisquito Creek overflow conditions at street bridges are not remedied, is there any possibility of high water getting in behind the Matadero floodwalls? Should floodwalls be raised on Matadero Creek before flooding problems on San Francisquito are remedied?

If the #101 culvert is out of the scope of this DEIR study I feel there is a disconnect in the backwater discussion that makes this study deficient and the Palo Alto Flood Basin hydrology demands a separate DEIR of its own.

WATERSHED HYDROLOGY is presenting a problem for me in my layman's math. To return again to the constraints of the project site, I wish to review the base data with which I am working.

The Palo Alto Flood Basin is 600 acres (1976 Engineer's Report/EIR)

"The completed basin will have a capacity in excess of the 3,596 acre feet required to contain a design flood " (p. 16 DEIR Coast Casey Pump Station Project 75-8 1977)

Peak Flow Rate	#101	P.A. Flood Basin
Matadero	2000 cfs	2400 cfs
Adobe/Barron	3550 cfs	4500 cfs
Adobe/Barron/& Matadero Creek	5050 cfs	6575 cfs

for 48 hour flood event (.1976 DEIR Engineer's Report)

The Coast Casey Pump Station Project 75-8 is the DEIR that covered Permanente Creek's diversion of storm water flows to the Palo Alto Flood Basin.

When I attempt to compute the volume of flood flow for the 72 hour storm event with these 1976 cubic feet per second flow rates I arrive at a total of 4,105 ac. ft.

When I compute the volume of flood flow for the 72 hour storm event using the 2001 DEIR Draft Engineer's Report for Matadero/Barron Creeks Long-Term Remediation Project, Volume I, reference Table 2-4 Peak Flood Discharges (p.2-24) ...

I get a deposition of 1844.6 acre feet of flood flow to the Palo Alto Flood Basin.

Add to this the 72 hours of Adobe/Barron Creek flows at 4500 cfs, or 2677 acre feet

and one reaches a total 1% flood flow into the basin of 4521.6 acre feet.

The Permanente Creek flows I can't find quantification for but they must bring the total up to over 5000 acre feet.

***** Isn't this over capacity for the Palo Alto Flood Basin and doesn't this make any concern over backwater effect in the 72 hour 1% flood event a mute point?

This flood basin should be the flood protection for Matadero and Barron Creeks and if the remediation project is implemented then Adobe Creek should go back to its historic outfall to Charleston Slough, and Permanente Creek to Mountain View Slough.

Until these other 'remediation projects' are accomplished, I see no reason to destroy this unique riparian and wetlands habitat of the baylands Matadero Creek. The backwater caused by the constraint of the #101 underpass conduit and the overfull flood basin (in the 72 hour 1% event) will render the proposed bypass a useless, expensive, and highly destructive engineering exercise.

Please sit down with me and the engineers who find this to be a solution and let us brainstorm other options.

I still believe that upstream retention, in percolation potential lands in the foothills is the responsible option and one that District staff has not seriously investigated. Reference the State of California, Department of Water Resources, Bulletin No. 118-1, Evaluation of Ground Water Resources, SOUTH BAY, Appendix A: Geology August 1967. Matadero Creek needs to cleanse its groundwater as well.

In all the above mentioned areas I find this document is deficient as a DEIR of remediation. Afraid I have more confidence in the 1976 version.

The 1976 Engineer's Report and Final EIR on the Palo Alto Flood Basin should be referenced in some detail. There are a number of observed waterfowl and species of flora and fauna that are omitted from this present Matadero/Barron Creeks DEIR, in Appendix B for instance. The earlier 1976 report noted the rare whistling swan, clapper rail, least bittern, night hawk, rehead, little blue heron, green heron, Brandt's cormorant, Pelagic cormorant, European Widgeon, common goldeneye, red phalarope, spotted sandpiper, pectoral sandpiper, black tern and clay-colored sparrow. These were not all seen on Matadero Creek but in the adjacent basin.

This proposed bypass will remove a third of the existing riparian corridor of Matadero Creek. Loss of habitat for the salt marsh harvest mouse is considered a take, no matter how carefully the habitat is removed by hand. This should not be permitted. No mitigation will replace the value of the wetlands and pickleweed in this baylands location. It is unnecessary and the hydrology support data is either not present in this document or is deficient.

The District service road has already been upgraded and trees removed from the area at the outer berm of the corporation yard. Is this permitted under present flood basin guidelines? Has this been incorporated in the tree count for the upland mitigation that is proposed beyond the raised levees on San Francisquito Creek? This is a mitigation location that can not be called in place and in kind.

In this 1976 report there were extensive nests observed, to note: mallard, gadwall, pintail, marsh hawk, killdeer, American avocet, black necked stilt, short-eared owl, northern shoveler, and possibly ruddy duck. This was a December survey. Does the Palo Alto flood basin still support such a variety of nesting habitat? How much of the proposed bypass habitat would be termed good nesting habitat and refugia? This appears to be the most valuable and unique waterfowl baylands marsh of our region. Can this remediation project be reviewed with California Department of Fish and Game? Please include me in such discussions.

No matter how 'soft' a bank treatment this bypass uses it will eliminate a third of the historic Matadero Creek riparian corridor, which is all that remains for the length of this proposed project, and including wetlands. The historic meander of the creek (see attached) goes from 250 foot width at #101 to 150 feet at the north western corner of the Palo Alto Municipal Yard. The bypass, 'soft' version, cuts a 75 foot wide swath around the yard for the length of a third of a mile, a permanent loss of wetlands and riparian. This is an awful and unnecessary option. Wetlands vegetation, pickleweed, cottonwood trees and willows all will be lost.

This flood basin was established as a wetland preserve and wildlife habitat sanctuary, one of the remaining relatively undisturbed baylands wetlands. Great care was taken with selective dredging and creation of island sanctuaries. In the 1976 DEIR it noted seven major physical habitats: fresh water areas, brackish water areas, dry undisturbed areas, wet areas compacted by heavy equipment, old channels now silted up, raised road beds and soil mounds. The plants within these conditions are four vegetation types: grassland vegetation, pickleweed vegetation, freshwater vegetation and soil mound vegetation, and are carefully and scientifically noted.

In closing, might I repeat that there is a disconnect between the remediation flood project and this intrusion into the flood basin. Floodwall raising and this bypass should be a very last resort, which I find is not the case. Barometric low pressure conditions alter normal water regimen and stream flows, and raised Bay levels are very unforgiving. A better safety factor is needed in this basin.

Sincerely, Libby Lucas

Libby Lucas, 174 Yerba Santa Ave., Los Altos 94022

What freeboard does FEMA indicate for a flood basin?